Universidade de Aveiro
2005
Departamento de Economia, Gestão e Engenharia Industrial

Paulo Cancela Simões do Amaral

Barreiras a iniciativas de benchmarking interno: uma investigação empírica

Barriers to internal benchmarking initiatives: an empirical investigation

Universidade de Aveiro
2005
Departamento de Economia, Gestão e Engenharia Industrial

Paulo Cancela Simões do Amaral

Barreiras a iniciativas de benchmarking interno: uma investigação empírica

Barriers to internal benchmarking intiatives: an empirical investigation

dissertação apresentada à Universidade de Aveiro para cumprimento dos requisitos necessários à obtenção do grau de Mestre em Gestão de Operações, realizada sob a orientação científica do Prof. Dr. Rui Manuel Soucasaux Meneses e Sousa, Professor Auxiliar na Faculdade de Economia e Gestão da Universidade Católica Portuguesa

Dedico este trabalho à Irina, minha musa.

o júri

presidente

Doutor Joaquim José Borges Gouveia
professor catedrático da Universidade de Aveiro

Doutor Américo Lopes Azevedo
professor auxiliar da Faculdade de Engenharia da Universidade do Porto

Doutor Rui Manuel Soucassaux Meneses e Sousa (orientador)
professor auxiliar da Faculdade de Economia e Gestão da Universidade Católica Portuguesa

agradecimentos

Ao professor Rui Sousa, meu orientador, pelo apoio, disponibilidade e comentários enriquecedores.

À Brintons Portugal por me ter proporcionado as condições necessárias para a realização deste trabalho.

Um especial obrigado à Dr.ª Liseta Vidal, ao Eng.º Elísio Mota, ao Mr. John Tuck e a todos os colegas da Brintons que participaram no desenvolvimento da componente empírica.

Aos familiares e amigos que me apoiaram durante a realização deste trabalho.

palavras-chave benchmarking, benchmarking interno, benchmarking de diagnóstico, barreiras

resumo

A implementação de iniciativas de benchmarking interno enfrenta barreiras que se podem tornar críticas para o seu sucesso, relacionadas com a organização, a gestão de projecto e a qualidade da informação. A comunidade científica tem-se debruçado pouco sobre este tópico e ainda não existe um quadro conceptual suficientemente evoluído que possa orientar os gestores das iniciativas de benchmarking na sua tomada de decisão. Geralmente, não se tem consciência das barreiras que podem surgir ou das estratégias mais apropriadas para as ultrapassar. Por conseguinte, os gestores dos processos de benchmarking têm dificuldades em antecipar problemas; recorrem à improvisação e perguntam-se frequentemente se estão no caminho certo. A presente dissertação visa aumentar a compreensão sobre as barreiras que podem surgir numa iniciativa de benchmarking interno e sobre as estratégias associadas, recorrendo à literatura científica e à investigação empírica. Primeiro, revê-se a literatura sobre benchmarking, com vista a identificar as características e dinâmica dos processos de benchmarking. De seguida, revê-se a literatura sobre benchmarking, gestão da mudança e gestão de projectos; identificam-se barreiras à implementação de iniciativas de benchmarking e apontam-se estratégias para as ultrapassar (quando disponíveis). Depois, desenvolve-se um estudo empírico de uma iniciativa de benchmarking interno implementado numa empresa portuguesa; complementam-se e validam-se, por esta via, os resultados obtidos através da revisão da literatura. No fim, apresentam-se e discutem-se as barreiras e estratégias associadas (quando disponíveis) que possam orientar os gestores de iniciativas de benchmarking interno no respectivo processo de implementação.

keywords benchmarking, internal benchmarking, diagnostic benchmarking, benchmarking barriers

abstract The implementation of internal benchmarking studies faces critical barriers related to the organization, project management and information quality. Existing research has focused insufficiently on this topic and professionals do not yet benefit from an adequate conceptual framework to assist them in making the right decisions. Usually, there is no awareness of what barriers may emerge nor of what the appropriate strategies may be to overcome them. Thus, the promoters of benchmarking initiatives have difficulties in anticipating problems, are left improvising and frequently wonder if they are doing the right thing. We aim to increase the understanding of the barriers that may emerge in an internal benchmarking initiative and associated strategies, based on a review of the literature enriched by an empirical investigation. In this connection, we review the benchmarking literature in order to identify the characteristics of benchmarking processes and their underlying steps. Next, we analyse the benchmarking, change management and project management literatures; we identify barriers to the implementation of benchmarking initiatives and associated coping strategies (when available). Then, we perform an empirical study of an internal benchmarking initiative implemented in a Portuguese plant, validating and complementing the theoretical results. In the end, we present and discuss the barriers and associated coping strategies (when available) that may guide promoters of internal benchmarking initiatives during the implementation process.

Contents

Tables

Figures

1. Introduction

Markets are changing fast and competitive advantage increasingly depends on speed, quality and superior performance. Organizations need to rethink the way they do business, to develop their structural and operational flexibility and their capacity to respond promptly to market requirements, and to regulate their behaviour according to consumers and competitors' dynamics (Carpinetti and Melo, 2002; Freytag and Hollensen, 2001; Pilcher, 1999; Yasin, 2002).

Consequently, there has been an increase in the search for strategies and tools that strengthen an organization's ability to compete, driving continuous improvement in organizational practices and performance and aiming at business excellence. The quest for business excellence is compulsory if organisations want to survive competition and stay in business for the years to come. Looking for excellence must engage every employee, from the president to the lower rank employee and the newcomer; it must be a structured and continuous process that puts learning and communication at its core. One tool that aims at gaining and maintaining competitive advantage through business excellence is benchmarking.

Benchmarking is a recently established strategic management tool that draws wide attention from various disciplines, including engineering, education, business, hospitality, public administration, etc. and that has become popular in the last decades.

A possible reason for its increased popularity might have to do with management buzzwords such as "competitiveness", "continuous improvement", and "learning". Indeed, benchmarking can help organizations find answers to the following questions:

Are we competitive?

How can we approach and drive continuous improvement?

How can we learn with the best?

The simplicity of benchmarking principles – a commitment to continuous product, process and performance improvement – can be considered another reason for its wide acceptance within the business community and its fast development. Comparing and learning with the best, both internally and externally, is at the core of benchmarking. It motivates a constant focus on identifying gaps in performance and developing the right strategies for closing them.

However, benchmarking is too new to avoid confusion in its meaning, description, and application. Therefore, the opinions about its usefulness are, of course, divided. The supporters of benchmarking do point out its benefits. For instance, Tutcher (1994, p.44) considers benchmarking essential for improvement, as it is indispensable to "know whether we are any better or worse than others". Yet, not long ago, while benchmarking impact was already being taken very seriously, there were many sceptics referring to it as "another flavour of the month", "a fad" or "industrial espionage" (Zairi, 1994).

Pioneered by Xerox in the eighties, benchmarking has been widely adopted by companies as an improvement initiative (Port and Smith, 1992, cited in Camp, 1997). According to Mittelstaedt (1992, cited in Fong *et al.*, 1998, p. 407), by using benchmarking to compare its copiers with Japanese-manufactured machines, Xerox managed, by 1981, to reduce machine defects by more than 90%, to increase its marketing productivity by one-third, to improve the level of incoming parts acceptance to 99.5%, and to reduce its service labour costs by 30%.

The results brought to Xerox by benchmarking were so impressive that soon many companies wanted to participate in their studies and many others were developing their own benchmarking studies.

Hence, firms and business consultants are responsible for the initial development of benchmarking concepts and processes (Dattakumar and Jagadeesh, 2003, p.178; Yasin, 2002, p. 232). Often, each benchmarking practitioner would develop his own approach towards the implementation of benchmarking, which led to different approaches and implementation processes. Partially, this was due to the inexistence of a solid theoretical framework supporting benchmarking. Yasin (2002, p. 232) argues that the academic community has been lagging in terms of providing and advancing models and frameworks that integrate the many facets of organizational benchmarking. Most of the publications on benchmarking were written by the practitioners and presented their particular approach to the process.

It was the Malcom Baldrige Award in the United Stated that, by allocating some 30% of its points to benchmarking, played an important role in publicizing and promoting benchmarking (STRATEGIC DECISION, no year, p.94). The European Quality Award, after its establishment in 1991, also promoted benchmarking within Europe. Indeed, quality award winners (e.g. Deming Prize, Malcom Baldrige Award, European Quality Award, and other national awards) are some of the most desired benchmarking partners.

In 1997, the European Commission put in place a committee (now known as the European Company Benchmarking Forum) responsible for the development of benchmarking activities to promote productivity growth (Pilcher, 1999). As a result, a number of benchmarking initiatives have been undertaken in each member country, most of them led by industry associations or national agencies and, soon after, benchmarking became popular with firms in Europe.

Despite these developments among practitioners, it was only in the early nineties that the academic community started paying attention to benchmarking. The number of academic papers on benchmarking published in this decade reflects the growing interest on the subject (Dattakumar and Jagadeesh, 2003, pp. 185-91). In spite of this, the theoretical framework of benchmarking still needs development. There is a large number of definitions being used, there isn't a widely accepted process for conducting benchmarking exercises and there are yet to be studied a number of areas where benchmarking could be used (Dattakumar and Jagadeesh, 2003, pp. 189-91; Kyrö, 2003, pp. 210-11).

Also, various types of benchmarking exist. Studies like Barber (2004), Bhutta and Huq (1999), Carpinetti and Melo (2002), Fong *et al.* (1998) speak of performance, process or strategic benchmarking, according to the object of study, or of internal, competitive, functional and generic benchmarking, according to the type of partner being used. Each of these processes has specific characteristics and its implementation depends upon what is being benchmarked and on the specificities of the organizations involved.

However, one specific type of benchmarking drew our attention during the initial literature review: internal benchmarking. As large companies delocalized their units all over the world, looking to reduce costs and improve their competitiveness, internal best practices started to be shared poorly or not at all. What before delocalization was rather obvious, became a problem and organizational know-how got more localized in subsidiaries. The phrase of Jerry Junkins, CEO of Texas Instruments Incorporated (1994, cited in Zairi and Whymark, 2000) reflects this problem: "If only we knew what we know. We cannot tolerate having world-class performance right next to mediocre performance simply because we don't have a method to implement best practices". Internal benchmarking looks at answering to this problem, sharing best practices internally, and several companies have adopted it recently.

The literature review also pointed that, during the implementation of benchmarking, it is common to come across barriers which slow down or even compromise effective benchmarking. According to The Oxford American Dictionary of Current English (1999) a barrier is “an obstacle that bars advance or access”. Note that we further use the term “barrier to benchmarking” to identify any obstacle, pitfall, drawback, limitation, or difficulty that arises during the implementation of benchmarking. The importance of determining, analysing, and discussing the barriers to benchmarking and how these barriers could be overcome to permit effective benchmarking has been highlighted by Robert Camp (1989, p. 231), in the first benchmarking book ever published. Fifteen years have gone by and no study specifically devoted to barriers to benchmarking was found in the literature.

Moreover, although several references were found to benchmarking barriers in the reviewed literature, they were scattered and mostly dealt with in a superficial manner. Interestingly, we noticed that there were no references to barriers to internal benchmarking. This is however explainable as internal benchmarking is recent and was insufficiently looked upon by academics. Another possible assumption that internal benchmarking would be less susceptible of being affected by barriers than other types of benchmarking, does not stand up, as when analyzing internal benchmarking initiatives we note they face barriers related to the organizational culture or to people’s openness to change.

We consider that barriers to internal benchmarking do exist and they may jeopardize the success of its implementation. Yet the promoters of benchmarking lack appropriate guidance to overcome them. In most cases, there is no awareness of the barriers that may arise in such a context, neither of the applicable coping strategies. It is increasingly important to augment the understanding of barriers to internal benchmarking since this type of benchmarking is increasingly being adopted by large companies in order to share best practices and improve performance.

In this context, we believe that there is both room and need to increase the understanding of the barriers to internal benchmarking and of the underlying ways to overcome them. The research questions that emerge are the following:

- *What barriers arise during an internal benchmarking study?*
- *How can a company cope with these barriers?*

In our thesis, we explore the answers to these research questions, aiming to: a) identify barriers to benchmarking from the (scarce) available literature and associated strategies to cope with them; b) empirically validate the identified barriers and coping strategies so as to inform internal benchmarking initiatives.

Our goal is to develop a categorized list of barriers to internal benchmarking, based on the literature and enriched with empirical data from an internal benchmarking initiative, and potential strategies to overcome these barriers (if available).

In order to attain the study's objectives, the structure of the thesis is as follows.

First, we develop a conceptual framework for benchmarking. In order to achieve this, we look into the concept of benchmarking and we develop a working definition. Then, we proceed with identifying the several types of benchmarking initiatives and analyse the purposes for which they are used. Next, we describe the benchmarking process and its underlying steps.

Second, we study the potential barriers to the implementation of benchmarking and identify the strategies to overcome these barriers. In order to achieve this, we review the literature on benchmarking, change management, and project management looking for any barrier, obstacle, pitfall, drawback, or limitation, which may impact on the implementation of the benchmarking process. Next, we synthesize the results, building a comprehensive list of barriers to benchmarking and developing a working definition for each barrier identified. Finally, we classify the barriers and develop a hierarchical, categorized list of barriers to the benchmarking process. In addition, we provide the strategies/ideas to cope with some of the barriers (if available).

Finally, we conduct an empirical study in an organization which has been implementing internal benchmarking since 2003. First, we define the methodology for data collection and analysis in the case under study and build a case study protocol. Then, we proceed to data collection in accordance with the case study protocol and we identify the barriers encountered in the implementation of the benchmarking process in this organization and the strategies used to overcome them. Next, we compare the empirical results with the potential barriers identified from the literature review. In the end, we point and discuss differences between the barriers found in the literature and the empirical results, highlighting the most important barriers for the case studied.

2. Benchmarking

The concept of benchmarking is still diffuse. There are various distinct definitions used by both professionals and academics, various classifications are employed and different benchmarking implementation methods are pointed out. There is no consolidated theoretical framework that could guide managers or promoters of benchmarking. Thus, it is important to understand and gain consensus on what benchmarking really is, what are its characteristics and purposes, and how it can be implemented, before pursuing to more complex investigations (e.g. benchmarking barriers or strategies to cope with these barriers).

In this chapter, we aim to increase our understanding of the benchmarking concept, the benchmarking process and its implementation. We also look at increasing our understanding about various types of benchmarking and the way they can be applied in an organization.

We perform our review in three steps. First, we clarify the benchmarking concept. Then, we identify the types of benchmarking and comprehend their purpose. Ultimately, we describe two benchmarking implementation processes and their underlying steps.

With the work performed in this chapter, we expect to build a working definition of benchmarking to be further used in the thesis and to get a better insight on how benchmarking can be used in different organizations, according to its different types and purposes.

2.1. Concept of benchmarking

The word “benchmark” refers to a cut by surveyors to mark a point in line of levels. More precisely, the Oxford English Dictionary (Simpson and Weiner, 1991) defines “benchmark” as “a surveyor’s mark cut in some durable material, as a rock, wall, gate-pillar, face of a building, etc., to indicate the starting, closing, or any suitable intermediate point in a line of levels for the determination of altitudes over the face of a country”. It can also be defined as “a point of reference; a criterion, touchstone” (Ibid.).

However, when used in a management context the term “benchmarking” is a “continuous systematic process to evaluate products, services and workflows in firms recognized to represent the best practices” (Spendolini, 1994).

The above is just one of the many definitions of benchmarking found in the literature. These definitions were developed by academic researchers, business consultants and by the very firms using benchmarking.

We further present a variety of definitions of benchmarking, representing distinct perspectives, and develop a working definition to be used in the rest of this thesis.

2.1.1. Benchmarking definitions found in the literature

The panoply of definitions found in the literature is a result of both the lack of a sound theoretical framework supporting benchmarking and the continuous development of the tool by practitioners, adapting it to the new challenges. Kyrö (2003), on her tentative to develop a general definition for benchmarking, comes across the fact that the definition has evolved along the years as the benchmarking tool itself developed.

Some relevant definitions of benchmarking suggested by both the academics and practitioners are presented in Table 1.

Table 1 – Definitions of benchmarking

	Study	Definition
A.	Spendolini (1994, p.11)	"continuous systematic process to evaluate products, services and workflows in firms recognized to represent the best practices, aiming at organizational improvement".
B.	Zairi (1994, p.11)	the practice of "constantly emulating the best in order to introduce change and aspiring for superior performance standards."
C.	Camp (1989, p.12)	the search for industry best practices that lead to superior performance. It is both a means by which new practices are discovered and understood, as well as a goal setting process.
D.	Pryor and Katz (1993, p. 7, cited in Voss *et al.*, 1997)	a process for measuring your performance against best-in-class companies, then using the analysis to meet and surpass the best-in-class companies.
E.	Kearns (CEO of Xerox, cited in Chen, 2002, p. 757)	"to continuously improve the product and service in order to compete with the best and the leadership in the industry".

	Study	Definition
F.	Xerox (1979, cited in Pulat, 1994, p. 37).	"continuous process of measuring our products, services, and practices against our toughest competition or those companies recognized as world leaders".
G.	Ford (cited in Pulat, 1994, p. 37)	a structured approach for learning from others and applying that knowledge.
H.	3M (cited in Pulat, 1994, p. 37)	a tool used to search for enablers that allow a company to perform at a best-in-class level in a business process.
I.	AT&T Benchmarking Group (cited in Pulat, 1994, p. 37)	"the continuous process of measuring your current business operations and comparing them with those of best-in-class companies. Application of the knowledge gained from a benchmarking study provides a foundation for building operational plans to meet and surpass industry best practices".
J.	Westinghouse Productivity and Quality Care (cited in Camp, 1989)	the "continuous search for and application of significantly better practices that lead to superior competitive performance".

2.1.2. Working definition

In order to identify common elements and decide upon the working definition of benchmarking to be used/adopted in this thesis, we have performed a comparative analysis of benchmarking definitions.

According to the analysis performed, four categories of elements have been found in the benchmarking definitions: *a) What is benchmarking? b) What does it do? c) With whom it compares? d) What are the expected results?*. The results of this analysis are presented in Table 2.

Table 2 – Comparative analysis of benchmarking definitions

	What is it?	*What does it do?*	*With whom it compares?*	*What are the expected results?*
A	continuous systematic process	evaluate products, services and workflows	firms recognized to represent the best practices	aiming at organizational improvement
B		constantly emulating	the best	introduce change and aspiring for superior performance standards
C		search for best practices	industry	lead to superior performance
D	process	measuring your performance, analysis	best-in-class companies	meet and surpass the best-in-class companies
E		continuously improve the product and service	the best one and the leadership in the industry	compete
F	continuous process	measuring our products, services, and practices against	toughest competition or those companies recognized as world leaders	
G	structured approach	learning	from others	applying knowledge
H	tool	search for enablers		perform at a best-in-class level in a business process
I	continuous process	measuring your current business operations and comparing; application of the knowledge	with those of best-in-class companies	building operational plans to meet and surpass industry best practices
J		continuous search for and application of		better practices that lead to superior competitive performance

Legend:

A: Spendolini, 1994

B: Zairi, 1994

C: Camp, 1989

D: Pryor and Katk, 1993, cited in Voss *et al.*, 1997

E: Kearns, cited in Chen, 2002

F: Xerox, cited in Pulat, 1994

G: Ford, cited in Pulat, 1994

H: 3M, cited in Pulat, 1994

I: AT&T Benchmarking Group, cited in Pulat, 1994

J: Westinghouse Productivity and Quality Care, cited in Camp, 1989

According to the analysis presented in Table 2, benchmarking is defined by the various authors as:

a) A process, tool or structured approach;

b) That measures, evaluates, improves, searches for, learns etc. products, services, performance and practices;

c) Comparing them against the best-in-class, world leaders, competition etc.;

d) In order to achieve superior performance, compete, apply knowledge etc.

Based upon this analysis, and for the purpose of this study, we define benchmarking as:

the process of measuring products, services, performance and practices against the best, aiming to achieve superior performance and improve competitiveness.

This is the working definition of benchmarking to be further used in this thesis.

2.2. Purpose of benchmarking

Once established the working definition, we proceed with the identification of some of the main purposes of benchmarking.

First, benchmarking is one of the leading tools that companies can use to improve practice and performance in order to stay ahead of competition. It is a way of measuring a firm's strategies and performance against ''best-in-class'' firms, both inside and outside its own industry. The aim is to identify best practices that can be adopted and implemented by the organization with the purpose of improving company performance (Freytag and Hollesen, 2001, p. 25).

Second, as Venetucci (1992, cited in Voss *et al.,* 1997) argues, benchmarking can be used as a goal-setting process, an aid in setting performance objectives to achieve performance improvements. Benchmarking assists in setting achievable goals that have already been proven successful (Elmuti and Kathawala, 1997, p. 231).

Third, it is also considered that benchmarking is one of the most responsive evaluation tools to create a learning organization that is receptive to both external and internal best practices (Barber, 2004, p301).

Fourth, benchmarking can also be an effective tool for planning and implementing change processes that lead to organizational improvement when the knowledge gained is

converted into a detailed action plan to improve competitive advantage (Pryor and Katz, 1993, cited in Voss *et al.*, 1997).

Fifth, according to Freytag and Hollesen (2001, p. 25), the purpose of benchmarking is to improve products and processes in order to better meet customer requirements. The linkage of the business process to customer needs is critical to effective benchmarking.

In our view, the variety of purposes presented above highlights the potential of benchmarking as a tool to help organizations to achieve superior performance.

2.3. Types of benchmarking

The variety of purposes inherent to benchmarking, together with the possibility of performing benchmarking with various types of partners, focusing in a diversity of issues, has led to the development of various types of benchmarking, each of them with specific objectives, implementation methodologies and available tools.

Moreover, many authors have developed their own classification, which has resulted in different terminologies being used. Fong *et al.* (1998, p. 409) argue that there is still a lack of consensus about the classification of benchmarking and that each classification system has its pros and cons.

The classification we will use in this thesis is presented below and draws on work from Barber (2004), Bhutta and Huq (1999), Carpinetti and Melo (2002), Fong *et al.* (1998) among others.

According to these studies, benchmarking can be classified into different types based on the **nature of the object of study** and the **partners against whom comparisons are made**. We next discuss the types of benchmarking according to these two factors.

2.3.1. Object of study

By nature of the object of study of the benchmarking initiative we mean what is being benchmarked. This perspective is useful since it clearly defines the objective we want to pursuit with the benchmarking initiative.

In terms of the **object of study**, benchmarking can be classified as:

- Performance benchmarking;
- Process benchmarking; or
- Strategic benchmarking.

An organization may wish to improve in all three areas (performance, processes and strategy) but it is too much to take at once. It's advisable to define current priorities for the benchmarking study.

We present next the characteristics of each one of these types of benchmarking.

Performance benchmarking

Bhutta and Huq (1999, p. 257) define performance benchmarking as the comparison of performance measures for the purpose of determining how good the company is as compared to others. The comparison is concerned with outcome characteristics of key products and services, quantifiable in terms of price, reliability, etc. (Fong *et al.*, 1998, p. 410).

This type of comparison is best suited to be performed with partners from the same sector.

Process benchmarking

In process benchmarking, methods, processes and operating systems are compared in an effort to improve the critical processes of the company (Bhutta and Huq, 1999, p. 257; Fong *et al.*, 1998, p. 410).

Process benchmarking involves producing process maps to facilitate comparison and analysis.

Strategic benchmarking

Strategic benchmarking is used to compare organizational structures, management practices and business strategies (Carpinetti and Melo, 2002, p. 246).

Strategic benchmarking involves considering high level aspects such as core competencies, developing new products and services, and improving capabilities for dealing with changes in the external environment. The changes resulting from this type of benchmarking may be difficult to implement and the benefits are likely to take a long time to materialise (PSBS, 2005).

Bhutta and Huq (1999, p. 257) point out that this type of comparison is best suited to be performed against competition.

Note that strategic benchmarking is usually not carried out internally since the comparison of strategy with oneself would give little or no means of improvement. However, a

comparison made of one's strategy with a competitor's would reveal an enormous amount of information and provide avenues for improvement (Bhutta and Huq, 1999, p.256).

2.3.2. Type of partner

Concerning the **type of partner**, benchmarking can be classified as:

- Internal benchmarking;
- Competitive benchmarking;
- Functional benchmarking; or
- Generic benchmarking.

We present next the characteristics of each one of these types of benchmarking.

Internal benchmarking

Internal benchmarking is carried out within the same organization but it may involve business units with distinct functions and in various locations. The focus of the study is usually processes and best practices, but can also be performance. It is easier to conduct such a study internally because it reduces the need to overcome barriers between strangers.

Barber (2004, pp. 302-304), Fong *et al.* (1998, p. 411) and Freytag and Hollesen (2001, p.28) mention a few advantages of internal benchmarking:

- More convenient;
- Reduces the likelihood of cultural problems;
- Straightforward comparison with partners using the same terminology, the same definitions and the same indicators;
- Higher level of cooperation may be expected;
- It is easier to obtain access to detailed information;
- Standardised data is often readily available; and
- It is less expensive.

The above assumes that best practices and excellent performance can be found within the organization.

Zairi (1998, p. 15) presents the case of a company that started with internal benchmarking and reports that they found internal benchmarking very useful as it enabled familiarisation with the benchmarking process throughout the company, encouraged cross-functional communication and it also enabled people to make their benchmarking errors within the company.

Indeed, several authors advise organizations that are just starting to use benchmarking to begin with internal benchmarking (Freytag and Hollesen, 2001, p.28; Zairi, 1998, p. 15). Within an organization with several locations or with various departments within the same location there are areas of excellence and best practices, which could be disseminated throughout the organization. It makes little sense to start benchmarking initiatives with others before undertaking an internal benchmarking initiative.

However, internal benchmarking has its shortcomings. Companies which implement internal benchmarking alone often retain an introverted view and have a tendency to conduct activities which only conform to cultural norms. This shortcoming can be mitigated by using internal benchmarking as a baseline for subsequent benchmarking initiatives (Freytag and Hollesen, 2001, p.26).

Competitive benchmarking

As the name implies, competitive benchmarking is carried out against the competition, preferably, against the best amongst competitors. This usually involves comparisons of performance, strategy, or both. Less often, it involves comparison of processes.

Competitive benchmarking is one of the most challenging types of benchmarking since it is not easy to get the competition to participate openly in such study and share information (Elmuti and Kathawala, 1997, p. 232; Fong *et al.*, 1998, pp. 411-2; Freytag and Hollesen, 2001, p. 26).

Indeed, one of the challenges is to establish trust amongst the participants and a common ground for improvement. To facilitate this process, it's common practice to use a third-party agent like an established consultancy firm, a business association or governmental agency (Elmuti and Kathawala, 1997, p. 241; Fong *et al.*, 1998, pp. 411-2). These intermediaries need to be trusted by all participants and should be seen as neutral. Their goal is to maximize the benefit of the benchmarking exercise for all participants. This is described as a collaborative approach (Fong *et al.*, 1998, p. 411).

It's also possible to conduct competitive benchmarking without the active collaboration of competition but, in this case, results may be limited. Public domain information on

competition is the easiest to obtain. The internet, industry association's publications, company newsletters and academic studies give a good insight and sometimes are a good source of data for starting the benchmarking study. Customers and suppliers that deal with the competition may also provide some valuable information. This method, though, may raise some ethical issues (Elmuti and Kathawala, 1997, pp. 234-5, 241-2).

Functional benchmarking

Functional benchmarking is performed against industry leaders which are not direct competitors. The benchmarking partners usually share some common technological and market characteristics. Often, they also concentrate in specific functions. Because there are no direct competitors involved, the benchmarking partners are more willing to contribute and share (Elmuti and Kathawala, 1997, p. 232).

The winners of national/industry prizes and quality awards such as Demming Prize, Malcom Baldridge Award and European Quality Award are some of the most desired benchmarking partners. A limitation may be the scheduling of the already overwhelmed benchmarked companies, which might be reluctant to participate in yet another benchmarking exercise (Elmuti and Kathawala, 1997, p. 232; Freytag and Hollesen, 2001, p. 26).

One way of overcoming this problem is looking for other sources of benchmarking data. Industry associations may have comparative data collected amongst their members. Their studies and publications may also provide valuable data for starting the benchmarking process. Indeed, industry associations are very well positioned to promote functional benchmarking initiatives amongst their members.

Generic benchmarking

In generic benchmarking, partners belong to different industries and may operate in distinct markets, nationally and internationally. The focus here is on excellent work processes and best practices across industries and markets (Fong *et al.*, 1998, p. 411). The benefit of looking outside the industry, as it happens in generic benchmarking, is that practices and methods that are not implemented in the investigators' own industry may be revealed and transferred with minimum adjustment.

Although it is considered very effective, generic benchmarking can be expensive and difficult to implement. It requires a broad conceptualisation of the entire process and a thorough understanding of procedures (Elmuti and Kathawala, 1997, p.232; Freytag and Hollesen, 2001, p. 26).

2.3.3. Types of benchmarking: brief overview

We believe it is important to provide a brief overview on the various types of benchmarking. Table 3 summarizes the various types of benchmarking.

Table 3 – Types of benchmarking

Criterion	Type	Characteristics
Object of study	Performance benchmarking	Comparison of performance measures such as price and reliability in order to determine how good the organization is as compared to others
	Process benchmarking	Comparison of methods, processes and operating systems in an effort to improve the processes of the organization
	Strategic benchmarking	Comparison of organizational structures, management practices and business strategies
Type of partner	Internal benchmarking	Performed against departments/business units of the same organization
	Competitive benchmarking	Performed against the best amongst direct competitors
	Functional benchmarking	Performed against functional equivalent industry leaders that are not direct competitors.
	Generic benchmarking	Performed against the best regardless of industry/markets

Another way to compare the various types of benchmarking is presented in Table 4, and illustrates the several possible combinations of the types of benchmarking and the associated value/relevance.

Table 4 – The benchmarking matrix

	Against what to benchmark			
What is benchmarked	Internal	Competitor	Functional	Generic
Performance	M	H	M	L
Process	M	L	H	H
Strategic	L	H	L	L
Relevance/Value	H: High	M: Medium	L: Low	

Source: Adapted from Bhutta and Huq (1999, p. 257)

Depending on the context, some combinations of types of benchmarking are more relevant than others. For example, performing strategic benchmarking against the best organizations, regardless of industry and market (generic benchmarking) brings little benefit since an organization's strategy varies greatly depending on the sort of industry and operating markets. It would be a high cost benchmarking exercise with meaningless results. However, performing strategic benchmarking against competition will generate a rich pool of relevant data with the potential of generating new, radical ideas for improvement.

2.4. Benchmarking implementation process

Benchmarking is a continuous process; it is not a one time initiative, and it is also a structured process. Thus, it is possible to define a method to implement benchmarking. The literature we reviewed shows that there is a great variation in the number of approaches and steps used in carrying out benchmarking. Some companies have used up to 33 steps while others have used only four (Bhutta and Huq, 1999, p. 258). For example, Bhutta and Huq (1999, p. 261-4) report that Xerox uses a benchmarking process with ten steps, while Kodak's benchmarking process has only six steps. Each company uses the number of steps that better suit its individual needs, depending on the complexity and the size of the project undertaken, to better enable them to control and monitor the implementation process.

Nevertheless, the major components of the benchmarking process remain relatively similar independently of the more or less attention given to a specific area, which will add or remove a few more steps from the process.

However, two distinct approaches to the benchmarking process (and respective implementation procedures) were identified in the literature:

- Typical benchmarking process, associated with the so-called "Traditionalists' perspective";
- Diagnostic benchmarking process, associated with the so-called "Modernists' perspective";

Each of these approaches has different objectives and applies in different organizational circumstances; yet, they can complement each other in certain situations. For instance, as Longbottom (2000) and Pilcher (1999) mention, the modernists'/diagnostic benchmarking process perspective may be only one phase of the benchmarking process in an organization, a quicker one that prepares it for a typical benchmarking process.

We next present the characteristics and steps of each one of these two approaches.

2.4.1. Typical benchmarking process/Traditionalists' perspective

Longbottom (2000) points out that the traditionalists'/typical benchmarking process perspective sees benchmarking as a tool focused on improvement initiatives and performance measurement.

The typical benchmarking process is usually used by large firms, which have enough available resources to sustain the process – generally costly and with medium or long term results. As Mann and Welch (2001) emphasize: "the 'real job' of benchmarking can prove costly in terms of resources and is not an area to be entered into lightly". Thus, its implementation in small and medium sized enterprises is rare and has low chances to succeed without external support.

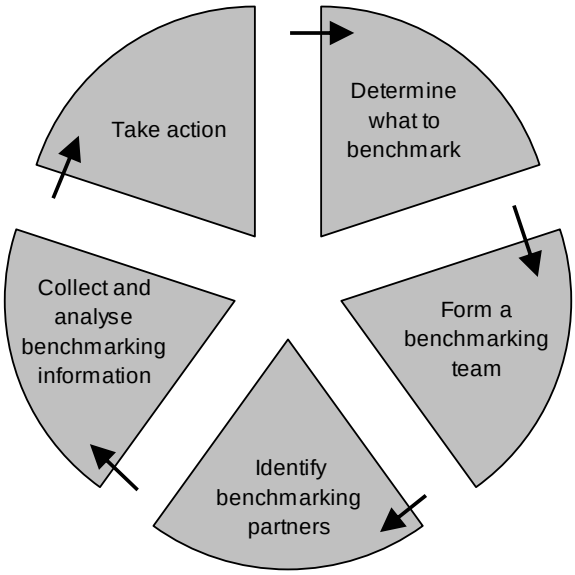
There are no specific benchmarking tools that facilitate this form of benchmarking, which typically uses the organizational systems in place, e.g. management systems/functions, quality management systems, etc.

Bhutta and Huq (1999) identify five key steps of a typical benchmarking process:

- Plan the study: determine what to benchmark;
- Form the benchmarking team;
- Identify benchmarking partners;
- Collect and analyse benchmarking information;
- Take action: adapt and improve.

These five major components are represented in Figure 1, linked together like the spokes on a wheel.

Figure 1 – The benchmarking wheel



Source: adapted from Camp (1989)

We'll further develop the five components involved in the benchmarking process.

Plan the study: determine what to benchmark

According to Freytag and Hollesen (2001, p. 27) the starting point is the identification of subject areas where improvements are critical. The criteria for selecting the subject areas are:

- They should be of strategic importance for the business; and

- Improvements in the areas will make a significant contribution to the overall business results.

Corporate or divisional leadership teams typically decide what will be benchmarked, though some companies use benchmarking study teams (Bhutta and Huq, 1999, p. 258) or needs assessment teams (Fong *et al.*, 1998, p. 414). In either case, the decision of what to benchmark must be driven by organizations' "critical success factors'" – that is, an organization should focus on aspects aligned with the company's strategic direction.

For instance, in the case of performance benchmarking, the organizations may focus on the most critical products/services. Then, in the case of process benchmarking, the focus may fall upon vital processes. Ultimately, in the case of strategic benchmarking, they may focus on key strategic matters.

Carpinetti and Melo (2002) point out that defining the object of study in a benchmarking initiative is a first and fundamental step if improvements on product and operational performance intend to boost competitiveness and business results. Their paper presents an approach for systematically defining the object of study of benchmarking based on deriving improvement actions from customer expectations and strategic decisions through business processes, and prioritising improvement actions that will most contribute to strategic objectives.

Form the benchmarking team

A team should be formed with members chosen from the various areas of the organization. All members should cooperate and communicate with one another in order to get the best results out of benchmarking (Elmuti and Kathawala, 1997, p. 234).

Proper training is provided to the team members in the field of benchmarking. The team develops a plan that includes designation of team member's roles and responsibilities, project milestones and a realistic completion date. Getting a very thorough understanding of the object of study was found to be one of the strongest success factors to the implementation of benchmarking (Bhutta and Huq, 1999, p. 258). Thus, the team needs to identify customers, define benchmarking project scope, design flow charts, determine critical success factors and decide upon the critical performance measures (Pattison, 1994, cited in Bhutta and Huq, 1999, p. 258).

Identify benchmarking partners

The organization should look for partners that excel in the specific areas being benchmarked, the ones that have the best practices and performance. The best practices

may be present in every kind of organization, regardless of what industry or nation they are in.

The following two questions provide the starting point in the search for a suitable benchmarking partner according to the specific object of study (Freytag and Hollesen, 2001, p. 28):

- Who / what is better than us?
- To whom is this aspect a key to survival?

Fong *et al.* (1998, p. 414) advises that the organization should identify a list of potential candidates, including direct competitors and companies regarded as best-in-class based on the critical success factors. The benchmarking team should then collect information from all possible sources, starting from internal departments and extending to external contacts such as industry and professional associations, business newspapers and magazine, trade journals, business contacts, industry experts, consultants and customers.

Bearing in mind that the emphasis is on selecting those organizations excelling in the specific area being benchmarked, the benchmarking team should shortlist three to five benchmarking partners (Fong *et al.*, 1998, p. 414).

Many companies choose quality award winners (Deming Prize, Malcom Baldrige Award, European Quality Award, and other national awards) as benchmarking partners. Candidate companies are invited to participate in the study and an agreement is reached about the information that will be shared and how it will be used. Not all companies contacted will want to participate, so it is imperative that mutual benefits are highlighted. Generally, sharing the benchmarking report with partners serves as a strong incentive for participation (Bhutta and Huq, 1999, p. 259).

Collect and analyse benchmarking information

Bhutta and Huq (1999, p. 259) noted that this step is perhaps the heart of benchmarking. Not only are data collected, but also analyzed and turned into information to be compared with one's own.

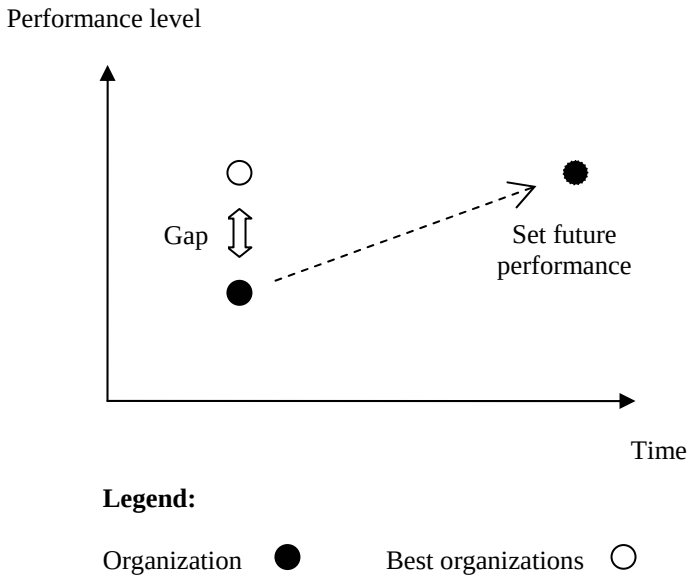
The purpose of collecting data in a benchmarking study is much more than understanding which companies are excelling in certain aspects and by how much. This does not answer the question of how best practice is achieved, so the data collection should be geared toward understanding the “enablers” of best-practice (Camp, 1989).

According to Fong *et al.* (1998, p. 415) there are two sources of data, referred to as primary and secondary sources. The primary source involves original research where data are collected from surveys, interviews, direct site visits, trade shows and reverse engineering. A major advantage of original research is that the data collected is a better match to individual needs. The secondary source is completed research provided from periodicals, books, brokerage reports and on-line databases. This source is particularly useful if the required database is very large or the data are difficult to collect. However, organizations should evaluate each source based on its accessibility, accuracy reliability, validity, timeliness, scope of coverage, cost, target audience and readability.

The benchmarking analysis assesses an organization's current state relative to those of excellent organizations and results in highlighting major opportunities, threats, strengths and weaknesses. It helps to discover improvement activities and set future performance levels to be achieved through such efforts. Only through a complete diagnosis of the organization will the benchmarking parties truly know what changes are appropriate (Fong *et al.*, 1998, p. 415).

Figure 2 illustrates such an analysis, which allows the identification of the performance gap between the organization's current state and the best organizations, and supports the projection of future performance.

Figure 2 – Performance gap analysis



When analyzing results, the realization of the rationale for collecting more than statistics from benchmarking partners emerges. Statistic comparison does not provide the "rich"

data that give a good insight into what is being benchmarked and stimulate the “creative adaptation” of good practices. By understanding variations in different companies' processes along with enablers of superior performance, one is able to identify strategies for improvement (Bhutta and Huq, 1999, p. 259).

Take action: adapt and improve

This phase involves adapting best practices and implementing specific improvements. Adapting best practices is not to be confused with copying best practices. Best practices learned from others must be adapted to an organization's culture, technology and human resources (Bhutta and Huq, 1999, p. 259).

Organizations should establish specific action plans to improve in order to meet and surpass industry best practices. This includes stating such issues as required resources, legitimate accountability and a timeframe for the change. The action plans also address which are the improvement teams, which areas are to be focused on, what activities are set, and what support functions (such as training and external consultants) are expected (Fong *et al.*, 1998, p. 416).

Freytag and Hollesen (2001, p. 31) suggest that the implementation of planned changes could take place through developing employee skills, training and organizational development. A workforce with superior skills is a primary force of sustainable competitive advantage. Hence, training and development become the critical means for creating readiness and flexibility for change across all organizational levels.

Some improvements will be immediate or short-term, requiring few or no additional resources. Others will be long-term and will require considerable resources (Bhutta and Huq, 1999, p. 259).

A method of evaluating improvements over time, by tracking performance improvements on an ongoing basis, is critical to the effective adaptation of best practices.

2.4.2. Diagnostic benchmarking process/Modernists’ perspective

Longbottom (2000) points out that the modernists’/diagnostic benchmarking process perspective is based on business excellence self-assessments. And, as the same author specifies: “through benchmarking business excellence results, organisations that are performing better in a business excellence category can be quickly identified. These can then be targeted for a more specific and in-depth […] benchmarking study”.

The diagnostic benchmarking process is usually used by small and medium-sized enterprises, yet available to large ones, too. It is a faster approach and brings tangible results faster than the typical benchmarking process. Generally, it is linked with Excellence Models, which “provide a set of criteria against which any organization can assess itself and use the framework to identify any gaps” (Auluck, 2002). It is normally promoted by governmental agencies or professional associations that motivate the process (Alstete, 2000).

This form of benchmarking benefits of a number of tools, essentially software packages built with data collected in large international studies on manufacturing competitiveness (e.g. International Service Study), but also management tools that allow for a softer and more standardized implementation, leading to comparable results. Generally, these tools include: self-assessment services, benchmarking data, case studies (illustrating some use of best practice), performance measures and performance improvement activities (Mann and Welch, 2001). Some well-known tools are: PROBE, MICROSCOPE, DOLPHIN, BPIR, ASSESS, OPTIMUS or PILOT.

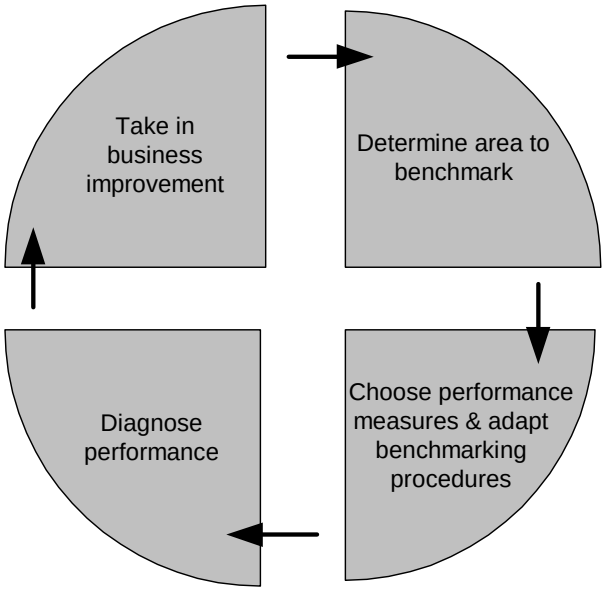
The number of steps to implement the diagnostic benchmarking process also varies according to the authors or to the focus given by the governmental agencies or professional associations involved in the process.

From the analysis and synthesis of four key sources on diagnostic benchmarking (PROBE, 2005; Mann and Welch, 2001; Auluck, 2002; BRINTONS, 2003), we identified four distinct components of the process:

- Determine the area to benchmark;
- Choose appropriate performance measures and adapt benchmarking procedure / tool;
- Diagnose existing performance;
- Take in business improvement process.

We illustrate these steps in Figure 3, adapting the benchmarking wheel (illustrated in Figure 1) to the modernist perspective.

Figure 3 – The Benchmarking wheel: modernists' perspective



We'll further develop the four key components of the modernists'/diagnostic benchmarking process.

Determine the area to benchmark

This component is identical to the component "Determine what to benchmark" presented in the traditionalists'/typical benchmarking process.

Choose appropriate performance measures and adapt benchmarking procedure / tool

This component consists of choosing performance measures related to the area to benchmark (Mann and Welch, 2001) and/or adaptation of the benchmarking tool to the organization (PROBE, 2005, Auluck, 2002, Mann and Welch, 2001). In this last case, the process involves joint work between key decision makers in the organization and representatives of the professional association or governmental agency that is promoting the benchmarking process (PROBE, 2005).

It may include, depending on the benchmarking diagnostic tool to be used in the process, a part of customization of this tool to the organizational objectives and idiosyncrasies. It is at this stage that the main steps and objectives of the benchmarking implementation procedure are usually defined (PROBE, 2005, Mann and Welch, 2001, Auluck, 2002).

Diagnose existing performance

This component focuses on the comparison of the organizational performance to specific benchmarks and against the practices used by other organizations. In certain situations, e.g. PROBE or DOLPHIN, there are a number of specific steps to be followed at the organizational level (PROBE, 2005, Auluck, 2002, BRINTONS, 2003):

- Commitment to participate. In this case, a Senior Manager, called “Champion”, commits to promote the benchmarking process in the organization.
- Team appointment. The Champion appoints a team with multi-level and cross-functional composition to carry out the benchmarking process. This is considered a critical part of the process, as individuals selected need to be business aware and prepared to contribute to discussions.
- Questionnaire/Organizational performance scoring. Each member team is responsible with filling in a questionnaire in cooperation with other employees not directly involved in the benchmarking initiative. Best practices are part of this questionnaire, and provide an interesting information source that influence desirable targets for the area being assessed. A pre-benchmark communication may be organized, as it happens in PROBE – BEST, emphasizing that benchmarking should be used to identify opportunities both internally and externally to the organization that can be shared for mutual benefit.
- Facilitated day/Consensus meeting. A facilitator spends a day working through the processes being assessed in the questionnaire and works towards team consensus, based on discussions and reflection on individual scores. This discussion is the base for the identification of areas/processes to be improved after the diagnostic is finalized.
- Diagnostic report. A report is generated by the benchmarking promoters, outlining the strengths and weaknesses of the organization and positioning it comparatively to world-class organizations. This report is disseminated within the organization and specifically to the team responsible with carrying out the benchmarking process. In addition, the report constitutes the base for the business improvement initiative.

Carry out business improvement process

This component is a follow up of the diagnostic report, and consists of action planning, implementation and monitoring results.

It may be performed in various steps, carried out internally:

- Identify improvement projects, quantify objectives and register. These steps are sometimes referred to as “action planning” and use as inspiration source the improvement techniques and practices made available by the benchmarking promoters. In most cases these are included in case studies that either mention how to implement a certain practice or present the outcome of the implementation. The questionnaire used to diagnose existing performance may also serve as inspiration, as it usually includes desirable levels of performance in specific areas and include best practices (Auluck, 2002, Mann and Welch, 2001, PROBE, 2005, BRINTONS, 2003).

  In specific situations, e.g. PROBE, the action planning may be facilitated by the benchmarking promoters, looking at turning the results of the diagnostic report into “a mechanism for change and performance improvement” (PROBE, 2005), linking it to the organizational systems and processes and incorporating it in Strategic Planning programmes or other on going organizational projects (Auluck, 2002).

- Implement the actions/practices. The improvement actions are put into practice within the organization being benchmarked. The implementation may be inspired in case studies that describe how this can be performed. Identified techniques, practices and performance measures can be used to improve specific processes. Note that in this phase, communication strategies should maintain the momentum of the benchmarking process (Mann and Welch, 2001).

- Measure results (monitor performance change). Performance measures need to be used to assess the progress, measuring performance against improvement objectives. This allows for re-diagnostic in specific areas/processes subject to improvement and enables the evaluation of the whole benchmarking process success (Mann and Welch, 2001).

2.4.3. Comparative analysis of the two approaches

In order to clarify the similarities and dissimilarities between the two approaches to the benchmarking process – the traditionalists’ perspective/typical benchmarking process and the modernists’ perspective/diagnostic benchmarking process – we performed a comparative analysis according to their focus, type of organizations involved, costs, initiator and steps. Table 5 shows the results of this analysis.

Table 5 - Comparative analysis: Traditionalists' versus modernists' perspectives of the benchmarking process

	Traditionalists' perspective	**Modernists' perspective**
Focus	Key process understanding, comparison and adaptation; Performance measures.	Business excellence self-assessment.
Type of organization	Large organizations.	Small, medium or large organizations.
Costs	Can be high; it depends on benchmarking scope, number of partners involved etc. Costs are difficult to estimate and control.	Less expensive. Fixed, controllable costs.
Results	Medium-long term. Results difficult to compare with organizations other than benchmarking partners.	Short-medium term. Results comparable with organizations using the same benchmarking tool.
Benchmarking tools	No specific benchmarking tools, based on existing organizational systems. Large organizations occasionally develop in-house benchmarking tools.	Previously developed, specific and customizable benchmarking tools (software and process management tools).
Steps	Plan the study: determine what to benchmark; Form the benchmarking team; Identify benchmarking partners; Collect and analyse benchmarking information; Take action: adapt and improve.	Determine area to benchmark; Choose appropriate performance measure and adapt the benchmarking procedure/tool; Diagnose existing performance; Take in business improvement process.

According to the comparative analysis presented in Table 5, a number of differences may be identified between the two approaches to the benchmarking process.

First, the traditionalists' perspective is more focused on the comprehension, comparison and adaptation of key processes and on the development of performance measures, whilst the modernists' perspective gives particular emphasis to self-assessment for business excellence.

Second, due to higher costs and difficulty to control and estimate the overall overheads with the benchmarking implementation, the traditionalists' perspective/typical benchmarking is more frequently used by large organizations; these often have enough resources available to "invest" in the benchmarking process and, occasionally, even to develop in-house benchmarking tools to support and increase the efficiency of the process. On the contrary, the modernists' perspective/diagnostic benchmarking is less expensive. The possibility to control costs and to use a customized benchmarking tool to diagnose and monitor the benchmarking process makes this type of benchmarking a preferred tool for small and medium organization, obviously available for large organizations, too.

Third, in the typical benchmarking process the results usually appear medium-long term and usually are not comparable with other organizations (which complicates data comparison and their utility for benchmarking with other partners). The diagnostic benchmarking brings short-medium term results, comparable with other organizations. This makes diagnostic benchmarking a more attractive approach for small and medium sized organizations and ensures an easier change process, with low-hanging fruits.

Ultimately, the two approaches comprise different steps when it comes to their implementation. They share the first step (planning the study) and the last step (business improvement). In what respects the other steps, the traditionalists' perspective is more focused on team creation and consolidation, on choosing benchmarking partners and on collecting data, which are key aspects for its success. The modernists' perspective gives more emphasis on adapting the benchmarking tool and performing a proper diagnostic, preparing the business improvement phase.

We believe that this comparison may help in assisting the choice of the most appropriate approach to the benchmarking process in a given organization and in specific circumstances. Clearly, a mix of the two approaches can be used.

2.5. Synthesis

In this chapter, we clarified the benchmarking concept and, based on the comparative analysis of a number of definitions found in the benchmarking literature, we developed the following working definition:

> Benchmarking is the process of measuring products, services, performance and practices against the best, aiming to achieve superior performance and improve competitiveness.

We classified benchmarking initiatives according to their object of study and to the partners against whom comparisons are made, as follows.

- Object of study: Performance benchmarking, Process benchmarking or Strategic benchmarking;
- Type of partner: Internal benchmarking, Competitive benchmarking, Functional benchmarking or Generic benchmarking.

We looked into the benchmarking process and presented two different approaches to the benchmarking process and the respective implementation procedure:

- Typical benchmarking process / traditionalists' perspective
- Diagnostic benchmarking process / modernists' perspective

Each one of these two approaches has specific characteristics and steps for its implementation.

We increased the comprehension of the benchmarking concept, benchmarking process and its implementation. We also gained a better understanding of the various types of benchmarking and how they can be applied in an organization.

3. Potential barriers in the implementation of benchmarking and coping strategies

In order to pursue with the study of our main research questions (what barriers arise during an internal benchmarking study? how can a company cope with these barriers?), we need to support the empirical data collection on a categorized list of barriers to benchmarking, which may act as a framework for the ensuing research. In the context of this thesis the term barrier is used to identify any obstacle, pitfall, drawback, limitation, or difficulty that arises during the implementation of benchmarking.

We perform our study in four steps. First, we review the literature on benchmarking and identify barriers to the benchmarking process and strategies to cope with them. Second, we look at other disciplinary areas that study processes similar to benchmarking and we draw barriers to the implementation of these processes and strategies to cope with them. At this point, we review the literature on change management and project management and identify barriers to benchmarking process. Third, we synthesize results, build a comprehensive list of barriers to benchmarking supported by the evidence provided by the literature and develop a working definition for each barrier identified. Ultimately, we classify barriers and develop a categorized list of barriers to the benchmarking process.

With the work performed in this chapter, we expect to gain a broader understanding of barriers to benchmarking and strategies to cope with them, using inputs from various disciplinary areas, not only from the benchmarking literature (which is rather insufficient when it comes to barriers). We also expect to develop a categorized list of barriers with clear definition that can be tested/validated in the ensuing empirical study.

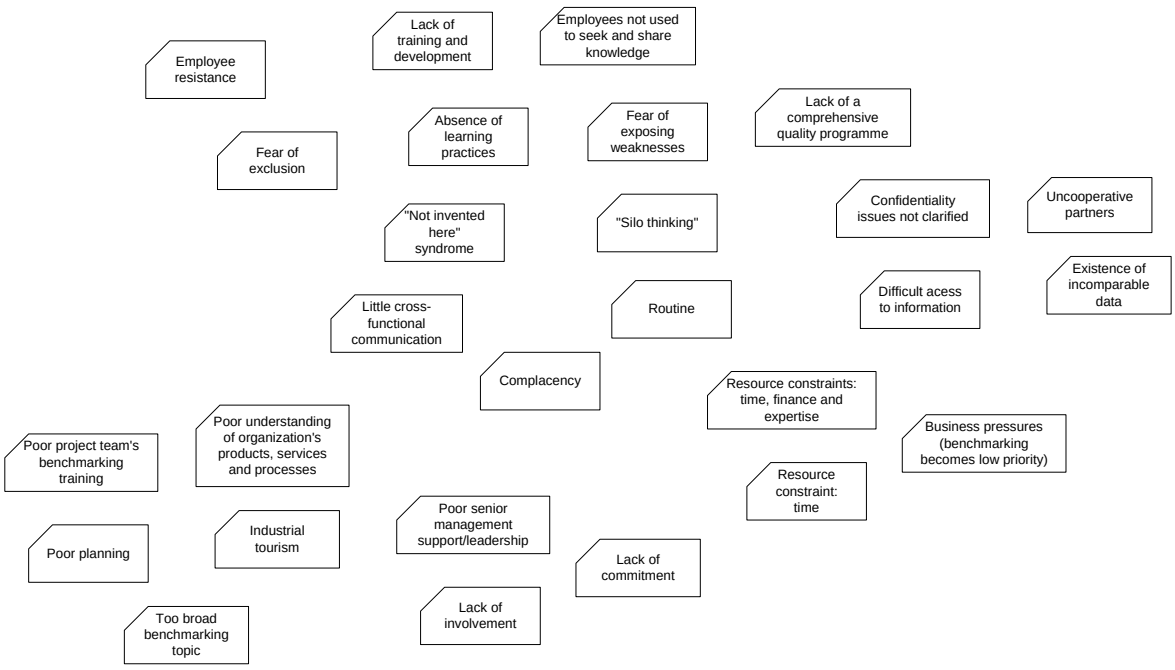
3.1. Barriers from the benchmarking literature

We reviewed the benchmarking literature and identified a number of studies that pointed out barriers that may arise during the implementation of benchmarking:

- Ålstrom et al. (1998)
- Bhutta and Huq (1999)
- Biesada (1991, cited in Fong et al., 1998, p.416)
- Bogan and English (1994)
- Elmuti and Kathawala (1997)
- Fong at al. (1998)
- Freytag and Hollensen (2001)
- Hinton et al. (2000)
- Jarrar and Zairi (2000)
- Tutcher (1994)
- Voss et al. (1997)

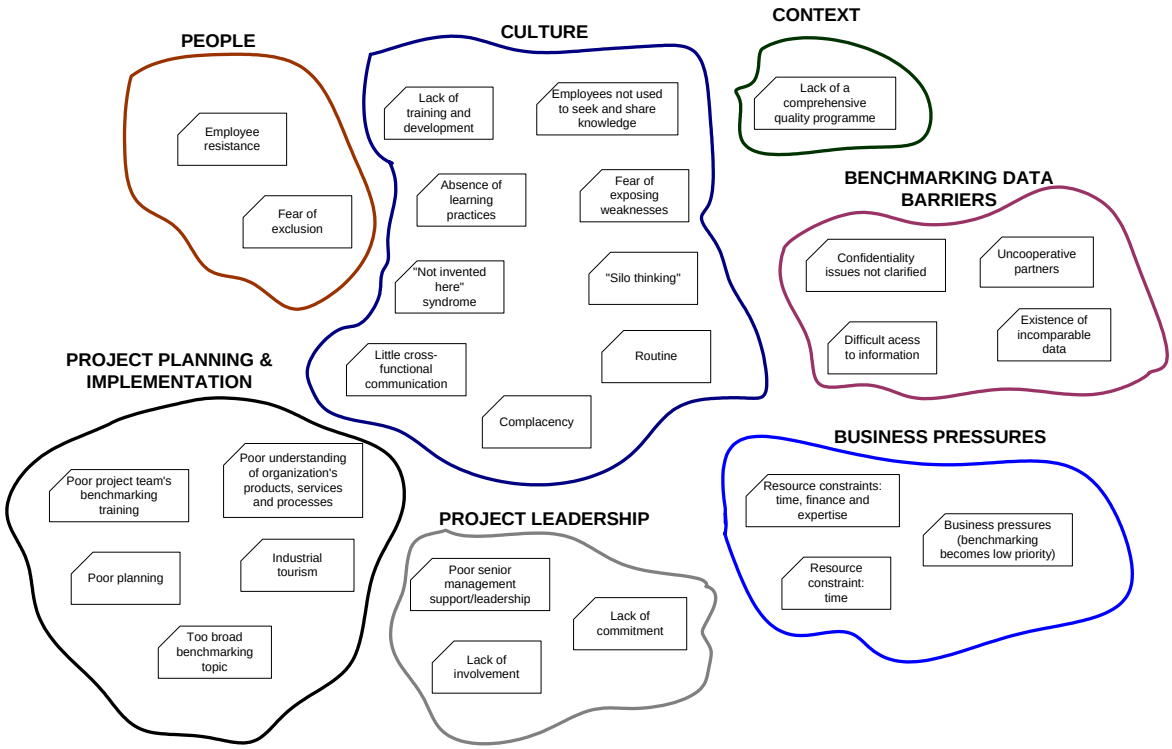
The analysis of these academic reviews revealed evidence for a total of 27 barriers. The authors pointed out to barriers either by describing and commenting real situations where barriers were found, often providing the outcome and strategies to overcome these barriers, or by advising to pay attention to some aspects of benchmarking implementation in order to avoid coming up with barriers. The list of barriers, context, and references is presented in Annex A. We summarize this list in Figure 4.

Figure 4 – Barriers found in the benchmarking literature: unstructured view



From the identified barriers, we could identify common patterns/categories, which we present in Figure 5.

Figure 5 – Conceptual categorization of barriers found in the benchmarking literature



Seven main categories were identified: people, culture, context, project planning and implementation, project leadership, business pressures, benchmarking data barriers. The understanding gained whilst developing the categories of barriers helped the development of a "meaning" for each category, as presented in Table 6.

Table 6 – Categories of barriers to benchmarking (benchmarking literature)

Category of barrier	Brief description of its meaning
People	Issues related to people in the organization.
Culture	Behaviours encouraged by the organization.
Context	Circumstances relevant to benchmarking.
Project planning and implementation	Factors related to the planning and implementation of the benchmarking project.
Project leadership	Issues related to top management's leading role.
Business pressures	Issues related to resource allocation.

Category of barrier	Brief description of its meaning
Benchmarking data barriers	Issues related to data collection and analysis.

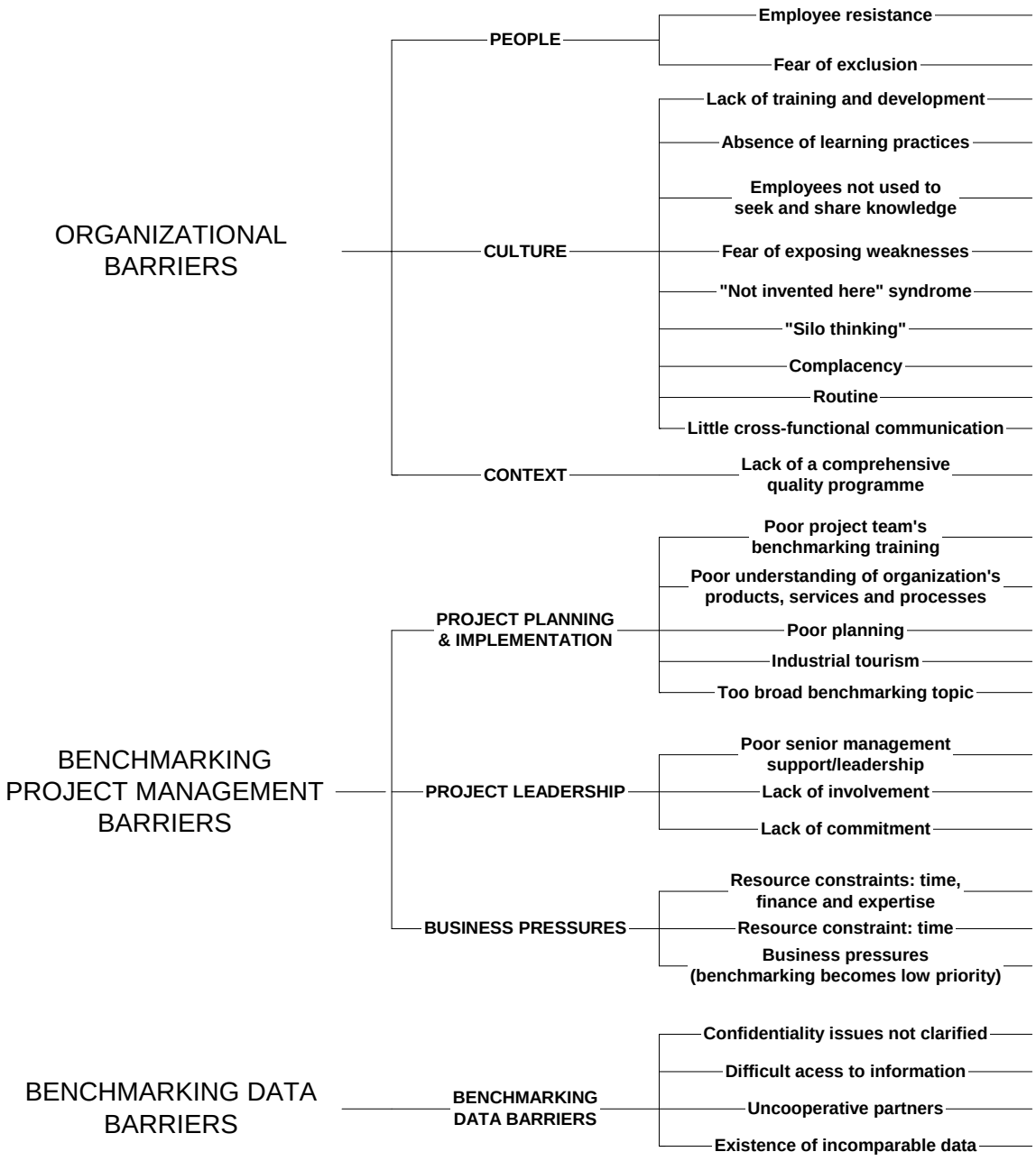
Then, we continued in the abstraction exercise and identified three main categories, which allowed synthesizing of the initial categories or patterns.

These are:

- **Organizational barriers**, which comprise barriers pertaining to the organization, namely its people, its culture and its context;
- **Benchmarking project management barriers**, which comprise barriers pertaining to project management aspects, namely project planning and implementation, project leadership and business pressures;
- **Benchmarking data barriers**, which comprise barriers related to the collection and comparison of benchmarking data.

The categorization of barriers in two levels of abstraction calls for a hierarchical representation of the resulting structure. This is presented in Figure 6.

Figure 6 – Hierarchical categorization of barriers found in the benchmarking literature



In what respects the strategies that may help in overcoming existing barriers, we were not as successful as in the case of barriers. We reviewed the benchmarking literature and identified a number of studies that pointed out strategies to overcome barriers to the benchmarking process:

- Bhutta and Huq (1999)
- Bogan and English (1994)
- Elmuti and Kathawala (1997)
- Fong at al. (1998)

- Freytag and Hollensen (2001)
- Garvin (1993 cited by Ålstrom et al., 1998, p. 10)
- Hinton et al. (2000)
- Muschter (1997, cited in Elmuti and Kathawala, 1997, p. 236)
- Roufaiel and Meissner (1995)
- Tutcher (1994)

The analysis of these academic reviews revealed a number of strategies for some of the barriers previously identified (see Annex A). We present these strategies in Table 7.

Table 7 – Strategies to overcome barriers to benchmarking (benchmarking literature)

Barrier	Strategies/ideas to cope with the barrier
Fear of exclusion / redundancy	Encourage feedback in an ongoing communication process to minimize misinterpretation.
Absence of learning practices (not a learning organization)	Develop organization's learning practices, i.e. systematic problem solving, experimentation, learning from past experience, learning from others, and transferring knowledge throughout the organization.
Little cross-functional communication	Develop matrix organization structures, which facilitate openness and communication. These organization structures are characterized by flexibility and capacity to shift people from one job to another, within groups and also from group to group, which help in facilitating communication among the group members.
Poor project team's benchmarking training	1) familiarize the team with a standard benchmarking process to be used throughout the organization; 2) familiarize the team with basic tools by which to analyse, understand, and improve work processes; 3) prepare the team in performance measurement; 4) provide the team with requisite technical skills, techniques, and tools to implement the benchmarking process; 5) prepare teams members to be effective problem solvers and solution creators; 6) present the benchmarking process in the context of existing

Barrier	Strategies/ideas to cope with the barrier
	quality improvement initiatives; 7) convey the philosophy of best practices as a catalyst for performance improvement
Poor understanding of organization's products, services and processes	TQM programs help building the understanding of organization's products, services and processes through communication and training. Process analysis and flowcharting are useful techniques.
Too broad benchmarking topic	Start with well-focused project missions that target manageable topic areas.
Poor senior management support / leadership	Senior management support requires leadership actions and behaviour that signal the importance of the project to the organization. Communication through the leadership's actions is certainly the most effective means to champion a cause. Particularly helpful are the following types of senior management's leadership commitments: 1) Visibly promote benchmarking within the organization; 2) Articulate and reinforce the benefits of benchmarking for best practices; 3) Translate general support for benchmarking into clear requirements for all managers; 4) Ensure that the organizational culture supports and encourages a "we-can-learn-from-anyone" attitude; 5) Empower employees who oversee processes and act as the owners of those performance systems to adapt best practices
Lack of involvement	Employees need information in order to get involved
Resource constraints: time, finance and expertise	With careful planning benchmarking cost can be kept to a minimum. Cost can be further controlled by defining a narrow but critical area to explore. To minimize the costly meeting and travel time, the company must work efficiently and communicate effectively. The company

Barrier	Strategies/ideas to cope with the barrier
	should know what their own specific problems are before employees go to visit other companies. The trip should be clearly defined as to what one wants to accomplish and what to look for in the trip, and one must understand what the other company wants from you and what you are willing to share with them.
Confidentiality issues not clarified	Address the confidentiality issue formally and at an early stage. Use code of conduct. Employees providing information should not give away the heart and soul of the company.
Uncooperative partners	Benchmarking partners need to establish a win-win relationship. Ethical and legal issues need to be addresses formally and at an early stage.
Existence of incomparable data	Use robust data collection methods to ensure accuracy and clarity.

Note that from the 27 barriers identified after reviewing the benchmarking literature, only 12 strategies or ideas on how to cope with them were encountered.

3.2. Barriers from change management and project management literature

Benchmarking is about changing the organization's processes and practices by adapting the practices of the best. It has objectives and it needs to be performed within a defined timeframe, therefore it is a project. The quest for change is present in all stages of benchmarking, but becomes an imperative in the last step – taking action. In the taking action stage the organization establishes specific action plans to improve its processes, in order to meet or surpass industry best practices (Fong *et al.*, 1998, p. 416).

This involves both change management and project management skills. To uncover the potential barriers in taking action to improve processes it is important to understand how change is implemented and how projects are managed, and what difficulties can be found.

Cross-functional teams are increasingly being used as change vehicles, charged in many cases to design, re-design, and implement (new) processes with large ramifications to a

company. Yet, all too often functional (and other) constraints inhibit their work (Jick, 1993, p.153). New processes are intended to integrate the best practices, to meet or surpass the best performers. Change programs are established to implement new processes, with such goals as to improve productivity, to increase quality, to speed up product development, and so on (Jick, 1993, p.153).

Some common pitfalls associated with the implementation of change can be mitigated when change takes place in a benchmarking context. Benchmarking can bring some structure and direction to the, otherwise, chaotic and erratic process of change, described by some of those in the middle of change like (Jick, 1993, p.193) “a laborious crawl toward an elusive, flickering goal, with many wrong turns”. Jick (ibid) adds that when implementing change only rarely does a company know exactly where it’s going or how it should get there.

The difficulties mentioned above can still be found when implementing change in a benchmarking context, but these difficulties are likely to be mitigated by a structured benchmarking process.

Bogan and English (1994, p.211) assert that if organizations decide to approach the management of change in a systematic way, benchmarking is arguably the single most powerful tool within their grasp. As an instrument for driving and managing change in a positive manner, benchmarking (Bogan and English, 1994, p.211-2):

- Creates motivation for change.
- Provides a vision of what an organization will look like after the change.
- Instructs employees what to change.
- Provides data, evidence, and success stories for inspiring change.
- Raises awareness of competitor position and headway that stimulates innovative change.
- Reduces the cycle time required to achieve change.
- Identifies the best practices for how to manage change.
- Creates a baseline or yardstick by which to evaluate the impact of earlier changes.

We present next the specific barriers to benchmarking process that we identified from the change management and project management literature.

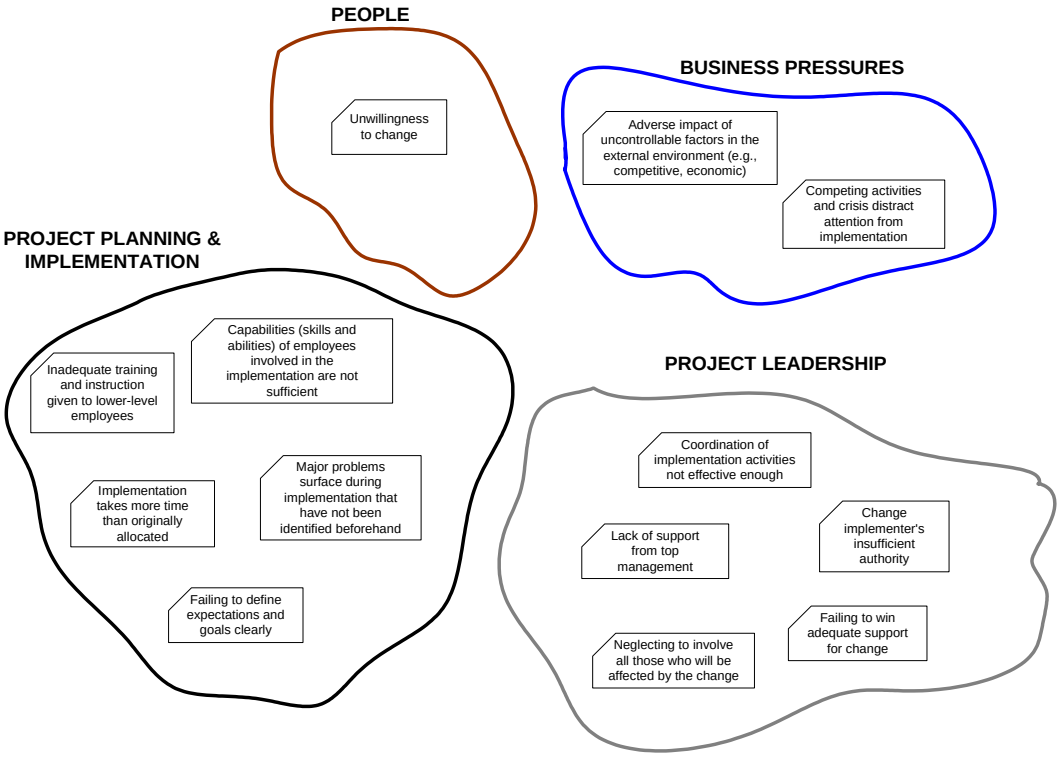
3.2.1. Change management

We reviewed the change management literature and identified two studies that pointed barriers that may arise during the implementation of benchmarking: Jick (1993) and Macadam (1996).

The analysis of these academic reviews revealed evidence of a total of 13 barriers. The authors pointed to barriers either by describing and commenting real situations where barriers were found, often providing the outcome and strategies to overcome these barriers, or by advising to pay attention to some aspects in order to avoid coming up with barriers. The list of barriers, context, and references is presented in Annex B.

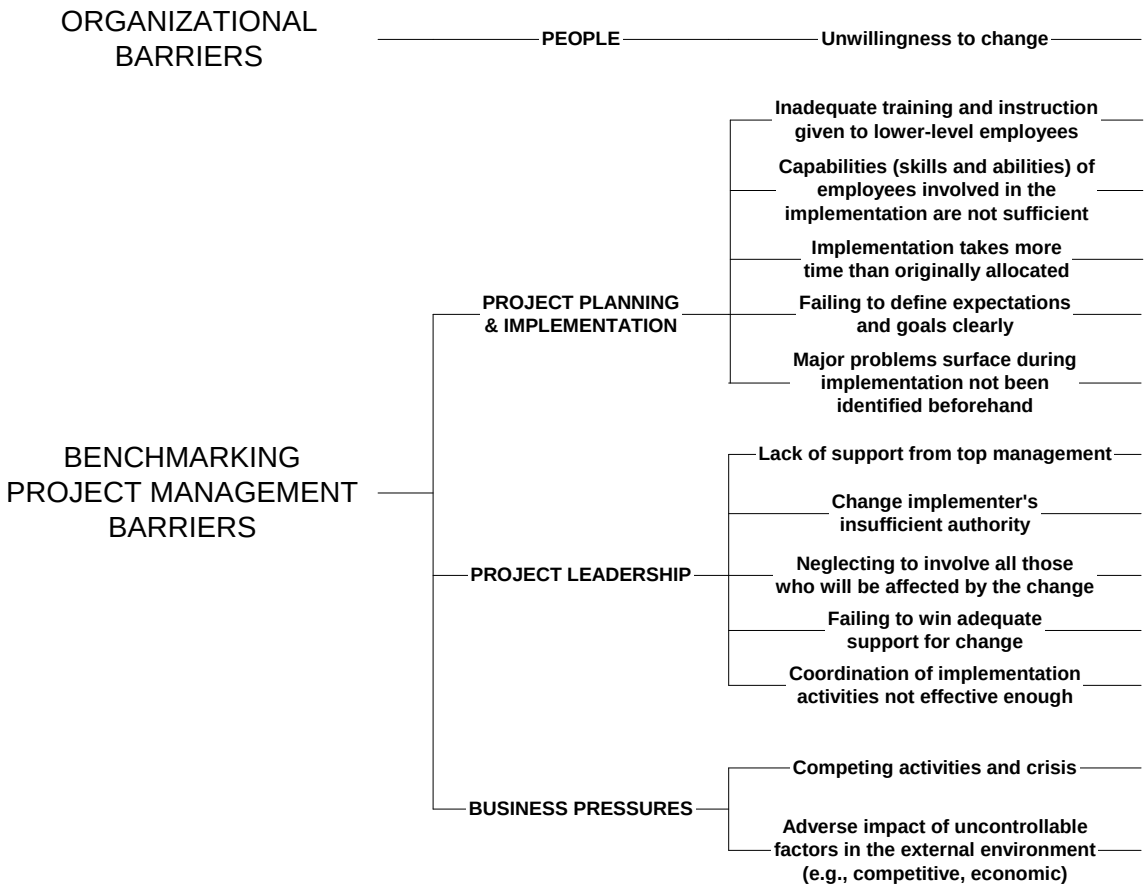
Next, we used the categories of barriers identified in section 3.1 (see Table 6) to classify the barriers found in the change management literature. This is presented in Figure 7.

Figure 7 – Conceptual categorization of barriers found in the change management literature



In the end, we developed the hierarchical categorization of barriers found in the change management literature. This is presented in Figure 8.

Figure 8 – Hierarchical categorization of barriers found in the change management literature



In what respects the strategies that may help in overcoming existing barriers, we were not as successful as in the case of barriers. We reviewed the change management literature and identified two authors that identified strategies to overcome barriers to the benchmarking process: Jick (1993) and Macadam (1996).

The analysis of these academic reviews revealed a number of strategies for some of the barriers previously identified (see Annex B). We present these strategies in Table 8.

Table 8 – Strategies to overcome barriers to benchmarking (change management literature)

Barrier	Strategies/ideas to cope with the barrier
Unwillingness to change	Human Resources and management can help people understand that leaving a comfort zone can be a productive move if, as individuals, they want to expand their knowledge and reach new goals. To achieve this, organizations should encourage individuals to: - welcome change, - seek new opportunities, - accept the challenge, - enjoy learning new skills, - develop through new experiences, and - think and act positively. By constructively planning time in relation to new tasks and goals (deriving from the change), an individual becomes better equipped to enjoy the changes.
Neglecting to involve all those who will be affected by the change	Change leaders should communicate openly and seek out the involvement and trust of people throughout the organization. By listening and responding to concerns, resistance, and feedback from all levels, implementers gain a broader understanding of what the change means to different parts of the organization and how it will affect them.
Failing to win adequate support for change	Begin winning support for change by actively seeking the backing of the informal leaders of the organization – beginning with those who are most receptive. Determine precisely whose sponsorship is critical to the change program's success. For this purpose a "commitment plan" may be developed, encompassing the following elements: - identify target individuals or groups whose commitment is needed. - define the critical mass needed to ensure the effectiveness of the change. - develop a plan for getting the commitment of the critical mass. - create a monitoring system to assess the progress.

Note that from the 13 barriers identified after reviewing the change management literature, only 3 strategies or ideas on how to cope with them were encountered.

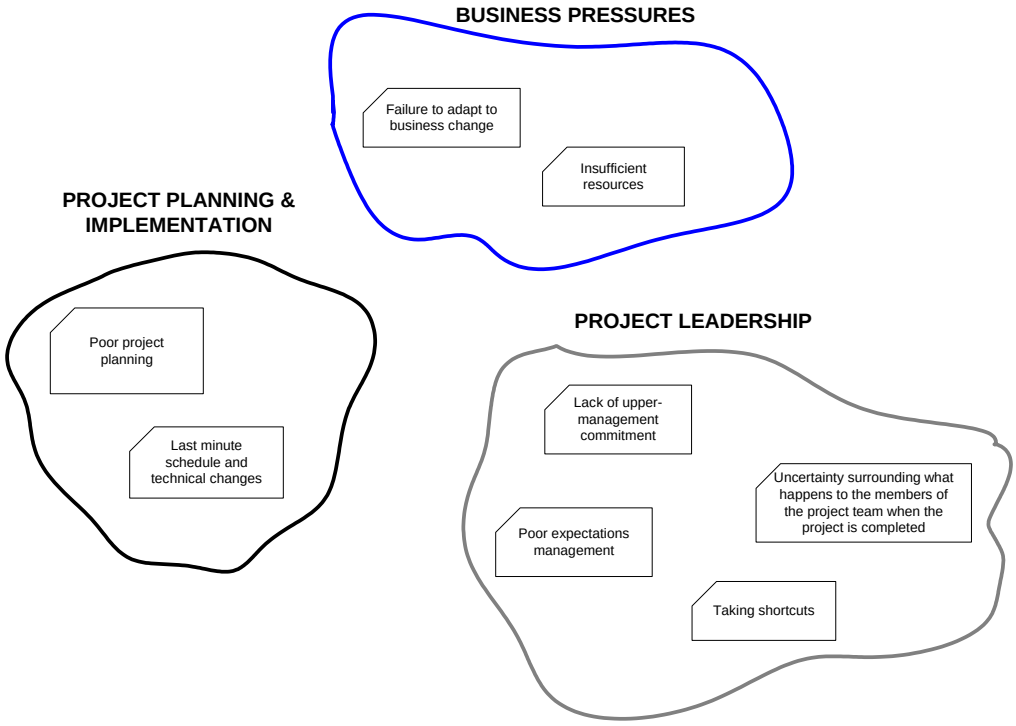
3.2.2. Project management

We reviewed the project management literature and identified two studies that pointed out barriers that may arise during the implementation of benchmarking: Meredith and Mantel (2000), Whitten *et.al.* (2004).

The analysis of these academic reviews revealed evidence of a total of 8 barriers. The authors pointed to barriers either by describing and commenting real situations where barriers were found, often providing the outcome and strategies to overcome these barriers, or by advising to pay attention to some aspects in order to avoid coming up with barriers. The list of barriers, context, and references is presented in Annex C.

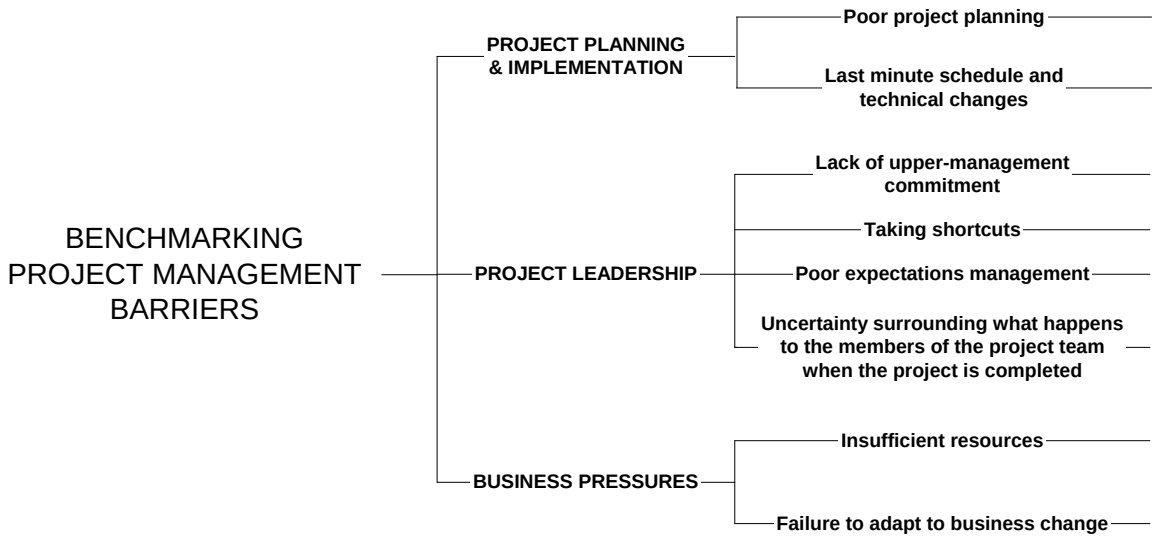
Next, we used the categories of barriers identified in section 3.1 (see Table 6) to classify the barriers found in the project management literature. This is presented in Figure 9.

Figure 9 – Conceptual categorization of barriers found in the project management literature



In the end, we developed the hierarchical categorization of barriers found in the project management literature. This is presented in Figure 10.

Figure 10 – Hierarchical categorization of barriers found in the project management literature



In what respects the strategies that may help in overcoming existing barriers, we were not as successful as in the case of barriers. We reviewed the project management literature and identified two studies that pointed out strategies to overcome barriers to the benchmarking process: Meredith and Mantel (2000), Whitten *et.al.* (2004).

The analysis of these academic reviews revealed a number of strategies for some of the barriers previously identified (see Annex C). We present these strategies in Table 9.

Table 9 – Strategies to overcome barriers to benchmarking (project management literature)

Barrier	Strategies/ideas to cope with the barrier
Last minute schedule and technical changes	The way to deal with last-minute schedule and technical changes is "the best you can". Beyond knowing that such changes will occur and will be disruptive to the project, there is little the project manager can do except be prepared to "scramble" The project plan must include allowances for risk and for features that allow it to be adaptive, i.e., to be responsive to things that might disrupt it while it's being carried out.
Uncertainty surrounding what happens to the members of the project team when the project is completed	The key to solving such problems is communication. Open communication between the project manager and team members must be made first priority. This requires that emotions, feelings, worries, and anxieties are communicated, as well as factual messages.

Barrier	Strategies/ideas to cope with the barrier
Failure to adapt to business change	Projects should be reassessed for compatibility with business changes.

Note that from the eight barriers identified after reviewing the project management literature, only 3 strategies or ideas on how to cope with them were encountered.

3.3. Barriers to benchmarking derived from the literature and coping strategies

In this section we develop the final categorized list of barriers with working definition, as it results from the review of benchmarking, change management and project management literature presented in sections 3.1 and 3.2. This list of barriers is used in the empirical study. We also indicate the few strategies encountered in the literature to cope with some of these barriers.

3.3.1. Hierarchical categorization of barriers

The evidences of barriers collected from the benchmarking, change management and project management literature review were brought together and ordered by type of barrier. This is presented in Annex D.

Then, we synthesized the evidences of barriers even further by combining similar ones into a single barrier designation, as presented in Table 10.

Table 10 – Synthesis of the evidences of barriers

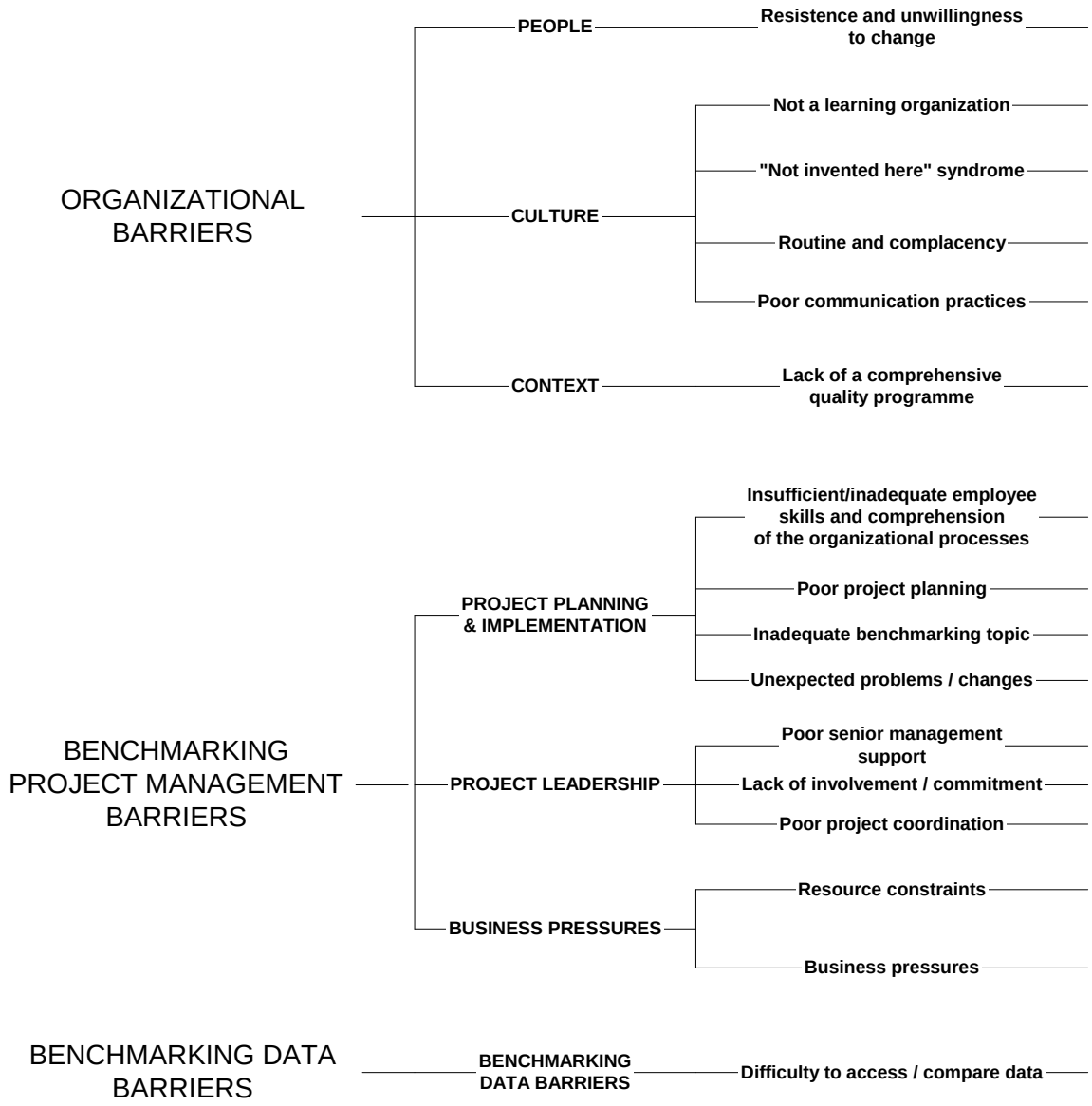
Category of barrier	Barrier designation	Evidence of barrier
People	Resistance and unwillingness to change	• Employee resistance • Fear of exclusion / redundancy • Unwillingness to change
Culture	Not a learning organization	• Lack of training and development • Absence learning practices (not a learning organization) • Employees not used to seek and share knowledge • Fear of exposing weaknesses

Category of barrier	Barrier designation	Evidence of barrier
	Not invented here syndrome	• Not invented here syndrome • “Silo thinking”
	Routine and complacency	• Complacency • Routine
	Poor communication practices	• Little cross-functional communication
Context	Lack of a comprehensive quality culture	• Lack of a comprehensive quality programme
Project planning and implementation	Insufficient/inadequate employee skills and comprehension of the organizational processes	• Inadequate training and instruction given to lower-level employees • Poor project team’s benchmarking training • Capabilities (skills and abilities) of employees involved in the implementation are not sufficient • Poor understanding of organization’s products, services and processes
	Poor project planning	• Poor planning • Poor project planning • Implementation takes more time than originally allocated • Failing to define expectations and goals clearly Industrial tourism
	Inadequate benchmarking topic	• Too broad benchmarking topic
	Unexpected problems / changes	• Major problems surface during implementation that have not been identified beforehand • Last minute schedule and technical changes
Project leadership	Poor senior management support	• Poor senior management support / leadership • Lack of support from top management • Change implementer’s insufficient authority

Category of barrier	Barrier designation	Evidence of barrier
	Lack of involvement / commitment	• Lack of involvement • Lack of commitment • Lack of upper-management commitment • Neglecting to involve all those who will be affected by the change • Failing to win adequate support for change
	Poor project coordination	• Coordination of implementation activities not effective enough • Taking shortcuts • Poor expectations management • Uncertainty surrounding what happens to the members of the project team when the project is completed
Business pressures	Resource constraints	• Resource constraints: time, finance and expertise • Resource constraint: time • Insufficient resources
	Business pressures	• Business pressures (benchmarking becomes low priority) • Competing activities and crisis distract attention from implementation • Adverse impact of uncontrollable factors in the external environment (e.g., competitive, economic) • Failure to adapt to business change
Benchmarking data barriers	Difficulty to access / compare data	• Confidentiality issues not clarified • Difficult access to information • Uncooperative partners • Existence of incomparable data

We present in Figure 11 the final hierarchical categorization of barriers, developed from the literatures of benchmarking, change management and project management.

Figure 11 – Hierarchical categorization of barriers, as derived from the literature



3.3.2. Categorized list of barriers with working definition

The evidences of barriers from each literature (benchmarking, change management and project management literature) were combined into a single hierarchical categorization of barriers. It was then possible to analyse all evidences for each type of barrier and develop a working definition for each barrier. The definitions were refined as the work progressed in order to ensure they characterized the spectrum of barriers within the established structure of barriers.

Table 11 exhibits the categorized list of barriers and a working definition for each barrier. Under the heading “Definition” we present the working definition developed after the analysis of all evidences related to each barrier. The definition represents our understanding of the barriers to be used hereafter, particularly during the empirical study.

This table also presents the coding system to be used hereafter in order to assign barriers to the correspondent category of barrier. The category of barrier *People* was given the code *A.1*; the category of barrier *Culture* was given the code *A.2*, and so on. Any barrier that falls into the category *People* is identified by the code A.1 plus the suffix *a, b, c*, and so on, to identify the precise barrier.

Table 11 – Categorized list of barriers with working definition

Category of barrier		Barrier designation	Definition
A. Organizational barriers	**A.1.** People	**A.1a -** Resistance and unwillingness to change	*Employee reluctance to cooperate and get involved when change is required. This may be due to the stress when required to move out of comfort zones, the challenge of learning new skills or the fear of exclusion.*
	A.2. Culture	**A.2a** - Not a learning organization	*Organization that does not favour learning practices, such as systematic problem –solving, experimentation, learning from past experiences, learning from others and transferring knowledge throughout the organization. This may be due to fear of exposing organizational weaknesses, lack of training and development or employees not used to seek and share knowledge.*
		A.2b - Not invented here syndrome	*Organizations that reject ideas, methods, practices that come from outside the organization because these are believed to be inferior to the ones used and/or developed internally, or it is believed that the organizational operations are too specific and no external solutions would apply.*
		A.2c - Routine and complacency	*Performing a work task or process in a mechanical or automatic way, without questioning it and without feeling the need to improve.*
		A.2d - Poor communication practices	*Lack of room, opportunity and incentives for the employees to communicate with each other, within and across functions and among all levels of the hierarchy, both in a formal and informal manner.*
	A3. Context	**A.3a -** Lack of a comprehensive quality culture	*Poor understanding, involvement or commitment of employees in providing a product or service that fulfils customer's needs.*
B. Benchmarking project management barriers	**B.1.** Project planning and implementation	**B.1a** - Insufficient/inadequate employee skills and comprehension of the organizational processes	*Lack of adequate and sufficient employee skills to implement benchmarking, aggravated by poor understanding of the organization's products and services and their linkage to the rest of the organization. This may be due to inadequate training given to the employees.*
		B.1b - Poor project planning	*Failing to define clearly expectations, goals, tasks, resources and deadlines. This requires the investment of time and effort.*

Category of barrier		Barrier designation	Definition
		B.1c - Inadequate benchmarking topic	*Setting out a benchmarking project whose topic is too broad or poorly articulated.*
		B.1d - Unexpected problems / changes	*Emergence of unforeseen major problems or last minute technical and schedule changes during the implementation.*
	B.2. Project leadership	**B.2a** - Poor senior management support	*Senior management's failure to support and give sufficient authority to benchmarking implementers.*
		B.2b - Lack of involvement / commitment	*Failure to mobilize and engage concerned employees and managers in benchmarking.*
		B.2c - Poor project coordination	*Management failure to organize effectively the implementation activities and cope with uncertainty and dynamic expectations that emerge in the benchmarking process.*
	B.3. Business pressures	**B.3a** - Resource constraints	*Unavailability or insufficiency of time, money and/or expertise required to attain the benchmarking objectives.*
		B.3b - Business pressures	*Emergence of competing activities, other priorities or uncontrollable factors resulting from either internal or external business environment. This leads to the necessity to reassess the benchmarking process for compatibility with business changes.*
C. Benchmarking data barriers	**C.** Benchmarking data barriers	**Ca** - Difficulty to access / compare data	*Problems in obtaining and using benchmarking data. This is due to confidentiality issues, incomparable data or uncooperative partners.*

3.3.3. Coping strategies

The strategies to cope with barriers suggested by the literature of benchmarking, change management, and project management were combined and are shown in Table 12.

There are strategies to cope with 11 barriers out of the 16 barriers included in the final categorized list of barriers. Even though there are strategies to cope with most of the barriers these strategies are not comprehensive, that is, they focus on some aspects of the barriers and cannot be considered a “solution” to overcome the barrier.

Thus, we’ll present the strategies/ideas to cope with barriers in Table 12, but we stress that the strategies are limited to only cope with some aspects of the barrier.

Table 12 – Strategies/ideas to cope with barriers

Barrier	Evidence of barrier	Strategies/ideas to cope with the barrier
Resistance and unwillingness to change	Fear of exclusion / redundancy	Encourage feedback in an ongoing communication process to minimize misinterpretation.
	Unwillingness to change	Human Resources and management can help people understand that leaving a comfort zone can be a productive move if, as individuals, they want to expand their knowledge and reach new goals. To achieve this, organizations should encourage individuals to: - welcome change, - seek new opportunities, - accept the challenge, - enjoy learning new skills, - develop through new experiences, and - think and act positively. By constructively planning time in relation to new tasks and goals (deriving from the change), an individual becomes better equipped to enjoy the changes.
Not a learning organization	Absence of learning practices (not a learning organization)	Develop organization’s learning practices, i.e. systematic problem solving, experimentation, learning from past experience, learning from others, and transferring knowledge throughout the organization.

Barrier	Evidence of barrier	Strategies/ideas to cope with the barrier
Poor communication practices	Little cross-functional communication	Develop matrix organization structures, which facilitate openness and communication. These organization structures are characterized by flexibility and capacity to shift people from one job to another, within groups and also from group to group, which help in facilitating communication among the group members.
Insufficient/ inadequate employee skills and comprehension of the organizational processes	Poor project team's benchmarking training	1) familiarize the team with a standard benchmarking process to be used throughout the organization; 2) familiarize the team with basic tools by which to analyse, understand, and improve work processes; 3) prepare the team in performance measurement; 4) provide the team with requisite technical skills, techniques, and tools to implement the benchmarking process; 5) prepare teams members to be effective problem solvers and solution creators; 6) present the benchmarking process in the context of existing quality improvement initiatives; 7) convey the philosophy of best practices as a catalyst for performance improvement
	Poor understanding of organization's products, services and processes	TQM programs help building the understanding of organization's products, services and processes through communication and training. Process analysis and flowcharting are useful techniques.
Inadequate benchmarking topic	Too broad benchmarking topic	Start with well-focused project missions that target manageable topic areas.

Barrier	Evidence of barrier	Strategies/ideas to cope with the barrier
Unexpected problems / changes	Last minute schedule and technical changes	The way to deal with last-minute schedule and technical changes is “the best you can”. Beyond knowing that such changes will occur and will be disruptive to the project, there is little the project manager can do except be prepared to “scramble” The project plan must include allowances for risk and for features that allow it to be adaptive, i.e., to be responsive to things that might disrupt it while it’s being carried out.
Poor senior management support	Poor senior management support / leadership	Senior management support requires leadership actions and behaviour that signal the importance of the project to the organization. Communication through the leadership’s actions is certainly the most effective means to champion a cause. Particularly helpful are the following types of senior management’s leadership commitments: 1) Visibly promote benchmarking within the organization; 2) Articulate and reinforce the benefits of benchmarking for best practices; 3) Translate general support for benchmarking into clear requirements for all managers; 4) Ensure that the organizational culture supports and encourages a “we-can-learn-from-anyone” attitude; 5) Empower employees who oversee processes and act as the owners of those performance systems to adapt best practices
Lack of involvement / commitment	Lack of involvement	Employees need information in order to get involved
	Neglecting to involve all those who will be affected by the change	Change leaders should communicate openly and seek out the involvement and trust of people throughout the organization. By listening and responding to concerns, resistance, and feedback from all levels, implementers gain a broader understanding of what the change means to

Barrier	Evidence of barrier	Strategies/ideas to cope with the barrier
		different parts of the organization and how it will affect them.
	Failing to win adequate support for change	Begin winning support for change by actively seeking the backing of the informal leaders of the organization – beginning with those who are most receptive. Determine precisely whose sponsorship is critical to the change program's success. For this purpose a "commitment plan" may be developed, encompassing the following elements: - identify target individuals or groups whose commitment is needed. - define the critical mass needed to ensure the effectiveness of the change. - develop a plan for getting the commitment of the critical mass. - create a monitoring system to assess the progress.
Poor project coordination	Uncertainty surrounding what happens to the members of the project team when the project is completed	The key to solving such problems is communication. Open communication between the project manager and team members must be made first priority. This requires that emotions, feelings, worries, and anxieties are communicated, as well as factual messages.
Resource constraints	Resource constraints: time, finance and expertise	With careful planning benchmarking cost can be kept to a minimum. Cost can be further controlled by defining a narrow but critical area to explore. To minimize the costly meeting and travel time, the company must work efficiently and communicate effectively. The company should know what their own specific problems are before employees go to visit other companies. The trip should be clearly defined as to what one wants to accomplish and what to look for in the trip, and one must understand what the other company wants from you and what you are willing to share with them.

Barrier	Evidence of barrier	Strategies/ideas to cope with the barrier
Business pressures	Failure to adapt to business change	Projects should be reassessed for compatibility with business changes.
Difficulty to access / compare data	Confidentiality issues not clarified	Address the confidentiality issue formally and at an early stage. Use code of conduct. Employees providing information should not give away the heart and soul of the company.
	Uncooperative partners	Benchmarking partners need to establish a win-win relationship. Ethical and legal issues need to be addresses formally and at an early stage.
	Existence of incomparable data	Use robust data collection methods to ensure accuracy and clarity.

3.4. Synthesis

In this chapter, we reviewed the literature on benchmarking and identified barriers that may arise during the implementation of benchmarking and a few strategies to cope with them.

We looked at other disciplinary areas that study processes similar to benchmarking and drew barriers to their implementation. So we reviewed the literature on change management and then we focused on the literature on project management and identified barriers to the benchmarking process. It is important to note that the literature review was critical in the sense that only the barriers found relevant to the benchmarking context were drawn from the literature.

We synthesized the results, building a comprehensive list of barriers to benchmarking supported by the evidence provided by the literature. We developed a working definition for each barrier identified, classified the barriers and developed a categorized list of barriers to the benchmarking process.

We believe that we managed to increase our understanding of the barriers to benchmarking, using information sources belonging to various disciplinary areas (i.e. change management and project management), instead of limiting our review to the benchmarking literature (which is rather insufficient when it comes to barriers).

We managed to develop a comprehensive list of potential barriers supported by the evidence provided by the literature. The evidence provided not only the underlying justification for the barriers, as presented by the literature, but also provided an explanation of their meaning and context. These barriers may now be tested / validated in the ensuing empirical study.

In what respects the strategies to cope with the identified barriers, we've identified a few. Still, the results are not comprehensive, i.e. they focus in solving some aspects of each barrier instead of being a real solution to overcome it. We believe that we were not able to identify substantial/consistent strategies to cope with identified barriers to benchmarking for two reasons.

First, the literature reviewed may not have been the most appropriate to find strategies, but only to identify barriers.

And second, as the very barriers to benchmarking were not pointed out clearly in the literature, the strategies to cope with them appear to be extremely difficult to identify. This fact points out for an important gap in this field of study that could be object of future research to be pursued by academic and professionals interested in the benchmarking topic.

We assume, however, that the empirical study may provide important insights for particular strategies to overcome barriers to benchmarking that could complement this literature gap.

4. Methodology

In the second chapter we clarified the benchmarking concept and increased our comprehension of its implementation process. In the third one we developed a categorized list of barriers that may arise during the implementation of benchmarking, based on benchmarking, change management and project management literature.

The present chapter describes the methodology used to address the research questions of the study. First, we recall the study objective and research questions. Second, we justify the selection of the research method. Third, we present the grounds for the selection of the benchmarking initiative to be studied. Fourth, we describe the data collection methods.

4.1. Study objective

The present study aims to determine the barriers to an internal benchmarking study and the strategies used to cope with these barriers.

The main research questions are:

What barriers arise during an internal benchmarking study?

How can a company cope with these barriers?

We recall that for the purpose of this study the term barrier is used to identify any obstacle, pitfall, drawback, limitation, or difficulty, to the implementation of the benchmarking process.

4.2. Research method

We start this section by discussing the selection of the research strategy. Then, we justify the decision to use a single-case study. And finally, we clarify the unit of analysis of this study.

According to Yin (1994, p.5), research questions that focus mainly on the “what” questions are a justifiable rationale for conducting an exploratory study, the goal being to develop pertinent hypotheses and prepositions for further inquiry. However, several research strategies can be used to conduct an exploratory study, for example, an exploratory survey, or an exploratory case study.

On the other hand, research questions which focus mainly on the “how” questions are more explanatory and are likely to lead to the use of case studies and histories as the preferred research strategy (Yin, 1994, p.6).

Thus, the case study research strategy can answer both “what” and “how” type of questions. Additionally, the case study strategy can be further enriched by using multiple sources of information, i.e. combining auxiliary research strategies.

The research questions in the present study are of the type “what” and “how”. The **case study** is, therefore, an appropriate research strategy for conducting our research.

According to Yin (1994, p.40), there are various types of design for case studies. In a two-by-two matrix approach presented by this author, we can identify: a) single-case (holistic) designs; b) single-case (embedded) designs; c) multiple-case (holistic) designs and d) multiple-case (embedded) designs.

We believe that the **single-case (holistic) design** is considered the appropriate research design for three main reasons.

First, the researcher has an opportunity to observe and analyse in detail a phenomenon apparently inaccessible to scientific observation, in the sense that no comparable study was found in the literature reviewed. Therefore, the single-case study design represents a “revelatory case” (Yin, 1994, p.40).

Second, the researcher happens to have privileged access to a particular case, allowing for deeper investigation. This helps overcoming one of the vulnerabilities of single-case study research: “…single-case designs […] require careful investigation of the potential case to minimize the chances of misrepresentation and to maximize the access needed to collect the case study evidence” (Yin, 1994, p.41).

Third, the limited resources and time available didn’t provide the conditions required for conducting multiple-case studies, without compromising the depth of observation (Voss *et al.*, 2002, p. 201).

After deciding to use a single-case study design, we need to define the **unit of analysis** (Yin, 1994).

The unit of analysis is related with the fundamental problem of defining what the “case” is. For instance, in the classic case study, a “case” may be an individual. Yet, the “case” can also be some event or entity that is less defined than a single individual. Case studies

have been done about decisions, programs, implementation processes and organizational change (Yin, 1994, pp.21-25).

Yin (1994, p.22) advises that, as a general guide, the definition of the unit of analysis (and therefore of the case) is related to the way the initial research questions have been defined.

In the present study the research questions refer to benchmarking barriers in the context of benchmarking studies/initiatives. Thus, the benchmarking initiative is the primary unit of analysis.

4.3. Benchmarking initiative selection

We study an internal benchmarking initiative taking place in a Portuguese plant of a carpet manufacturing company. Next, we'll describe succinctly the company, its Portuguese plant and the internal benchmarking initiative.

The company: Brintons

Established over two centuries ago, the organization is a family owned company with head offices in the United Kingdom. With just over two thousand employees worldwide the organization sells in 70 countries and has 7 manufacturing units in 4 continents.

The product is wool rich high quality axminster carpet and the main customers worldwide are casinos, 4 and 5 star hotels and ships. In the United Kingdom, it also sells into the housing market. Additionally to making carpets, the organization also develops and makes its own looms, which are exclusively used by the organization's manufacturing units. This means the resulting product is also unique and exclusive.

The last decade was characterised by both the increase of its manufacturing capacity and by the relocation of some of its manufacturing capacity out of the United Kingdom. The organization also underwent several reorganization initiatives aiming at reducing overheads and improving competitiveness.

Whilst many of its competitors in the United Kingdom and elsewhere in Europe have gone out of business, other have relocated to Southwest Asia, and in recent years, carpets manufactured in this low labour-cost countries have hit western markets. In order to preserve manufacturing units in Europe, the organization is striving to improve its practices and performance in order to maintain the competitiveness of its units.

The Portuguese plant: Brintons Portugal

Brintons Portugal was established in 1991 in order to relocate production equipment from the United Kingdom to a lower labour cost country within Europe. The plant was developed in three phases, as shown in Table 13.

Table 13 – Development phases of the Portuguese plant

Development phases	Phase 1	Phase 2	Phase 3
Year	1991	1997	2001
Product	Unfinished carpet. Product had to be sent to UK for finishing.	Unfinished carpet. Product had to be sent to UK for finishing.	Finished carpet. Product can be sent direct to customer.
Capacity m2/year	500 000	900 000	900 000
Main equipment	Winding, Beaming, Weaving, Mending, Shearing.	Winding, Beaming, Weaving, Mending, Shearing.	Winding, Beaming, Weaving, Mending, Shearing, Finishing, Wrapping.
Nº employees	120	220	260
Working schedule	All areas working 3 rotative shifts, 24h/day, 5 days/week	All areas working 3 rotative shifts, 24h/day, 5 days/week	Most areas working 3 rotative shifts, 24h/day, 5 days/week. Yet, some areas work 2 rotative shits, and other work standard hours (8h-17h).
Management structure	Essentially production focused with only 4 people in finance& admin area. Two directors: Production and Finance &admin.	Essentially production focused with only 4 people in finance& admin area. Two directors: Production and Finance &admin.	Essentially production focused with only 7 people in finance& admin area. Four directors: Factory, Production, Finance &admin., Accounting.

Development phases	Phase 1	Phase 2	Phase 3
			New functions: Human Resources, Quality Assurance and Logistics.

Most of the workforce is female (78%), and comes from the rural area around the industrial site. Average employee age is 32.

Most of the younger employees have 9 or more years of education with some having 12 years. Quite a few of the older employees have 6 or less years of school. This makes for a big educational and cultural gap.

In recruitment for phase 1, the average educational level was low. Since mid-management personnel were selected from that group their educational level was low but still appropriate for that group. In phase 2 and 3, the average educational level increased, but experienced mid-managers remained the same. This led to a problem, where mid-managers are knowledgeable and expert in their jobs, but have difficulties managing people with higher levels of education, e.g. there are several shift-in-charge and team leaders with 4 years of education managing people with 12 years of school.

The internal benchmarking initiative: BEST

Early in 2003 the organization's head offices decided that all business units (plants included) should undertake benchmarking, as part of a corporate best-practice sharing and improvement initiative. This initiative was given the project name BEST, which stands for Brintons Excellence through Structure and Teamwork.

From now on and for simplicity, we employ the designation *benchmarking initiative* or simply the designation *BEST* to refer to the BEST Benchmarking Initiative.

As a result of the quest from head offices, the plant under study initiated the BEST benchmarking initiative in December 2003. At the time this case study was carried (Nov-04 to Feb-05), the plant had been through all steps of BEST. Nevertheless, BEST was still in progress as there were several ongoing BEST actions and yet a few waiting to be implemented. Table 14 displays the benchmarking steps followed in the BEST benchmarking initiative.

Table 14 – BEST benchmarking steps

BEST steps	Description
1. BEST initiative communication	Communication of benchmarking objectives, procedures and timescale.
2. BEST team selection	Selection of individuals who are business aware and prepared to contribute to the discussion. The team should be multi-level and cross-functional.
3. BEST questionnaire scoring and discussion	Scoring of the BEST questionnaire by each individual followed by a team meeting led by the BEST coordinator, to enable discussion and reflection of the individual scores, reaching a team consensus score where possible.
4. Facilitated day	Discussion of the BEST questionnaire with the BEST team and presentation of the preliminary results by the benchmarking facilitator.
5. BEST report analysis	Analysis of BEST report in order to identify improvement opportunities (weakest drivers).
6. Action planning	Liaison with BEST office to identify best practices and develop action plans.
7. Taking action	Implementation of the action plans.

Source: data collected using the case study protocol (section 4.4)

This was the first time benchmarking was carried out at the plant. Before the BEST initiative, nobody had any practical knowledge on the subject of benchmarking.

BEST was considered suitable for the present case study because of its following characteristics:

a) Internal benchmarking

BEST is an internal benchmarking initiative. It aims to compare performance and share best practices among units within the same organization.

The objective of our research is to investigate barriers and strategies to overcome these barriers in an internal benchmarking initiative, thus BEST is adequate for our study.

b) Access to information

The researcher works at the plant and is responsible for coordinating the BEST benchmarking initiative at plant level. Thus, the researcher has a good, practical insight into the object of study, and has privileged access to information.

4.4. Data collection methods

To answer the research questions, we've collected data on the BEST initiative using different sources of information and various informants. In particular, we looked at data on barriers and the strategies used to overcome them.

Contextual data on the plant were also collected, enabling the understanding of the conditions in place at the time the BEST benchmarking initiative was conducted.

The field procedures that were followed in the case study are described in a document designated by "Case study protocol" and presented in Annex E. The case study protocol guided the researcher in carrying out the case study and can also be used to repeat the study in another plant, thus contributing to the reliability of the research.

Nest, we explain how principal informants were selected and how data were collected, and the rational behind these decisions.

4.5. Selection of informants

We recall that the researcher works for the organisation under study, and that he is involved in the benchmarking initiative. Thus, he has an insight into both the organisation and the benchmarking initiative, and has access to detailed information, namely plans, reports, communications, and the role of different people in the organization and in the benchmarking initiative.

This privileged knowledge and access to information enabled the researcher to collect contextual data about to the organization and the benchmarking initiative, and to direct the field study specifically to the identification of benchmarking implementation barriers and the strategies to overcome them.

This knowledge was also helpful in preparing the study. The researcher identified four major informants in the benchmarking initiative under study, as shown in Table 15. Note that an informant can be an individual or can represent a group of individuals of the same type. They are the persons in the company who are best informed about the data being collected. Voss *et al.* (2002, p.206) designates these individuals as principal informants.

Table 15 – Principal informants' designation and role

Informant designation	Informant role
BEST champion	Group's top management representative who drives the BEST initiative
BEST coordinator	Person responsible for the coordination of BEST initiatives at the plant
Plant management team	Plant's top management representative
BEST team	Plant employees involved with BEST

The four principal informants were chosen because they had a specific and distinct role in the BEST benchmarking initiative. They were involved with BEST in different ways and at distinct levels, thus they contributed in different ways to the benchmarking initiative. In addition, they were likely to have different perspectives, and had experienced difficulties of different types.

For this reason, they were considered the primary source of information in the field study, namely as respondents in the semi-structured interviews.

The role the informants played in the BEST benchmarking initiative can be better understood if we look at the BEST steps in which they participated (see Table 16).

Table 16 – BEST benchmarking steps where informants were involved

BEST steps	BEST champion	BEST coordinator	Plant management team	BEST team
1. BEST initiative communication	X	X	X	-
2. BEST team selection		X	X	X
3. BEST questionnaire scoring and discussion	-	X	-	X
4. Facilitated day	-	X	-	X
5. BEST report analysis	X	X	X	X
6. Action planning	-	X	X	X

BEST steps	BEST champion	BEST coordinator	Plant management team	BEST team
7. Taking action	-	X	X	-

Key: where there was involvement this is marked with an "X".

Source: data collected using the case study protocol (Annex E).

As can be seen from Table 16, informants were involved in distinct steps of BEST. Except for the BEST coordinator, none participated in all seven steps of the process. On the other hand, there were always two or more informants involved in each step.

By using informants that participated in different steps of BEST, we ensure they have different perspectives on the overall process and on the difficulties of a specific step. They have different experiences and thus different mindsets.

This allows us to better ensure data validity, by performing data triangulation using information from various sources and accommodating distinct perspectives (Yin, 1994).

4.6. Data collection

In case study research, data can be collected using various sources of evidence. According to Yin (1994, p.79-89), the sources of evidence can be: "documentation, archival records, interviews, direct observations, participant-observation, and physical artefacts". Voss *et al*. (2002, p.204-8) add to Yin's list: "personal observation, informal conversations, attendance at meetings and events, surveys […], collection of objective data" etc.

Yin (1994, p.79-89) notes that no single source has a complete advantage over all the others. Indeed, the various sources are highly complementary, and a good case study should use as many sources of evidence as possible.

A major strength of case study data collection is the opportunity to use many different sources of evidence. Furthermore, an important advantage of using multiple sources of evidence is the development of "converging lines of enquiry", a process of data triangulation (Yin, 1994, p.91-4). Voss *et al.* (2002, p.195, 206) also emphasize that through triangulation with multiple means of data collection, the reliability of data, and the validity of case research can be further increased.

In the present case study, the researcher collected data using various sources of evidence, namely documentation, archival sources, semi-structured interviews and direct observation.

However, the principal sources of data were collected through semi-structured interviews with the principal informants identified in section 4.5 using the case study protocol.

5. Empirical research: BEST case study

The empirical research we perform in this chapter is focused on our research objectives, providing data to validate and complement the list of barriers obtained from the literature review, and the strategies to cope with these barriers. We look at the barriers identified in an internal benchmarking study falling under the modernists' benchmarking process perspective.

Our empirical research essentially aims to:

- Identify barriers to internal benchmarking in the case under study and compare them with the list of barriers developed from the literature review, explaining differences.
- Classify and develop definitions for new barriers identified in the case under study and not present in the list developed from the literature review.
- Identify the strategies used in the case under study to cope with the barriers encountered.

First, we analyze the data collected in accordance with the case study protocol, looking to identify barriers to benchmarking and strategies to cope with them, in the case under study. Next, we compare the list of barriers found in the literature with empirical results and we explain the differences between these ones.

Second, we identify the few strategies used in the case under study to cope with the encountered barriers and we discuss the results.

Third, we synthesize key aspects and draw conclusions from our empirical research.

We expect to obtain, in the end of this chapter, the following results:

- A list of barriers to internal benchmarking in the case under study and strategies used to cope with them.
- A comparative analysis with the list of barriers obtained from the literature review, according to three dimensions of analysis: a) Barriers supported by research evidence; b) Barriers not supported by research evidence; c) Barriers emerging from research evidence.
- A refined list of barriers to benchmarking from the literature review, developed as a result of two processes: a) Adding new barriers and corresponding definition; b) Questioning existing barriers.

5.1. Data analysis

Dey (1993, p. 30) points out that the aim of data analysis is not limited to describing data, rather it is more holistic: we want to describe, interpret, explain and understand the events to which our data refers. For this, we need to break down the data in order to classify them, and the concepts we create or employ in classifying the data, and the connections we make between these concepts, provide the basis of a fresh description. The core of qualitative analysis lies in these related processes of describing phenomena, classifying them, and seeing how our concepts interconnect. Yin (1994, p.102) also supports these statements, adding that data analysis consists of examining, categorizing, tabulating, or otherwise recombining the evidence to address the initial propositions of a study.

We next present the codes used to classify the data, and then we explain the steps followed in data treatment, in order to identify the barriers from the empirical data.

5.1.1. Data coding

Interview code

Each interview with an informant was given a code, as shown in Table 17. The interview code identifies the data collected from the informant via interview and is used throughout the data analysis.

Table 17 – Interview codes

Interview code	Informant
I1	BEST champion
I2	BEST coordinator
I3	Plant management team
I4	Plant management team
I5	BEST team
I6	BEST team
I7	BEST team

Category code

Each barrier identified in the literature has been identified with a code. For example, the barrier with the code *A.2c* has to do with *routine and complacency (c).* This type of barrier is under *culture (A.2*), and *culture* is under the main category *organizational barriers (A)*. Refer to section 3.3.2 for the list of categories of barriers. Note that new codes were created as new category of barriers emerged in the case under study.

5.1.2. Data treatment

Most of the barriers identified in the case study were drawn from the interviews with principal informants. We recall that the informants were actively involved in BEST, thus they are the most appropriate individuals to identify the barriers.

The interviews were designed to collect data pertaining to: a) the barriers that the informants observed during the course of the benchmarking initiative, b) the strategies followed to overcome these barriers, and c) additional contextual data (see section 4.4).

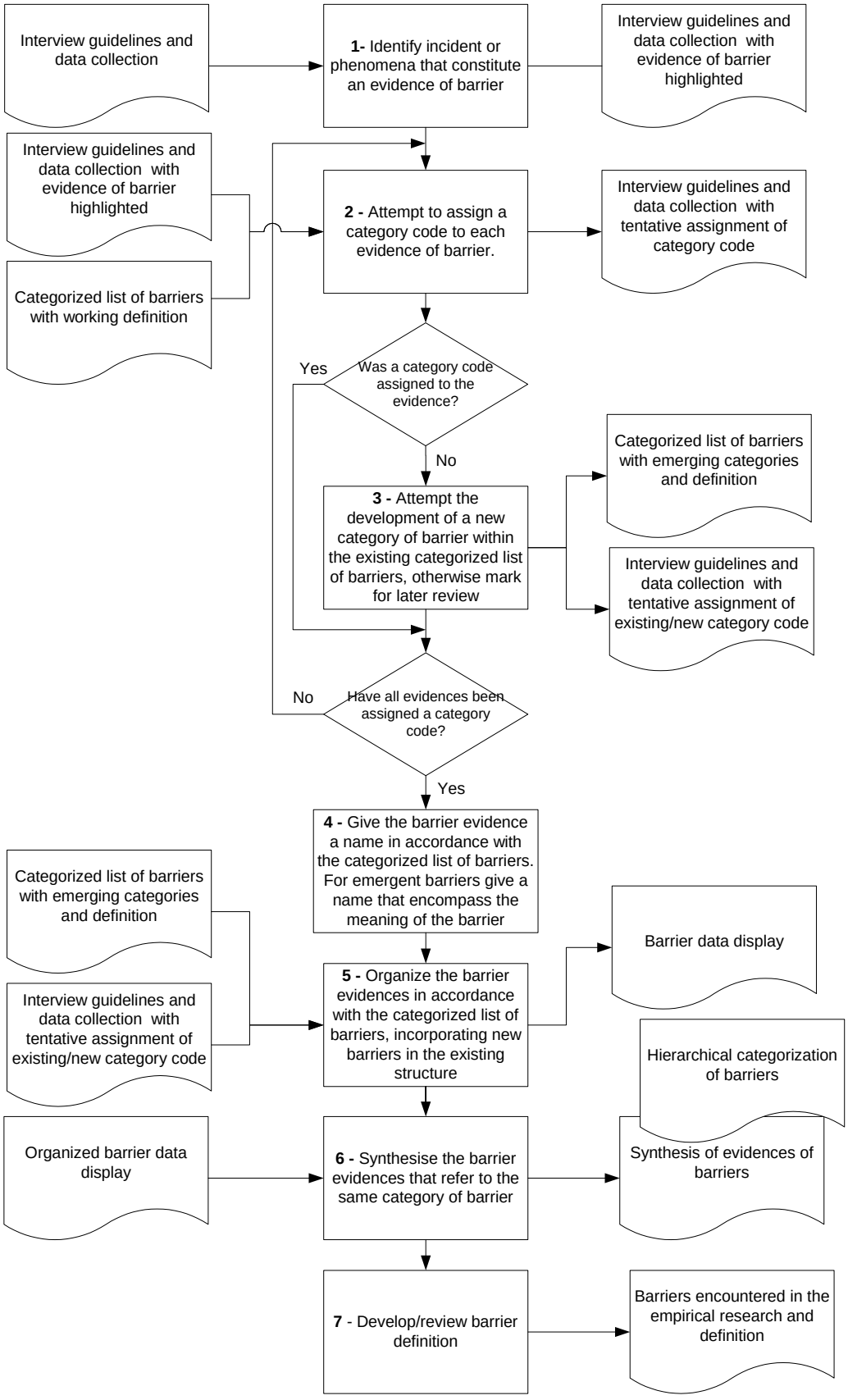
In order to identify the barriers, the researcher analysed the interview data for incidents or phenomena that constitute an evidence of barrier, whilst keeping in mind the categorized list of barriers drawn from the literature. The researcher was particularly attentive to any barrier reported by the informant, which had not been identified in the literature.

For each interview, we developed a document named “interview guidelines”, in accordance with the case study protocol. Data collected during the interview were recorded into a document designated “interview guidelines and data collection”. The researcher’s observations and comments were also recorded in this document, always within square brackets. A sample of the document “Interview guidelines and data Collection” is illustrated in Annex F.

5.1.2.1. Data reduction

Next, data were reduced from the records contained in “Interview Guidelines and Data Collection” in order to derive the barriers and strategies used to overcome them. We’ve performed the process of data reduction as illustrated in Figure 12.

Figure 12 – Data reduction: overview



The steps followed for data reduction are as follows:

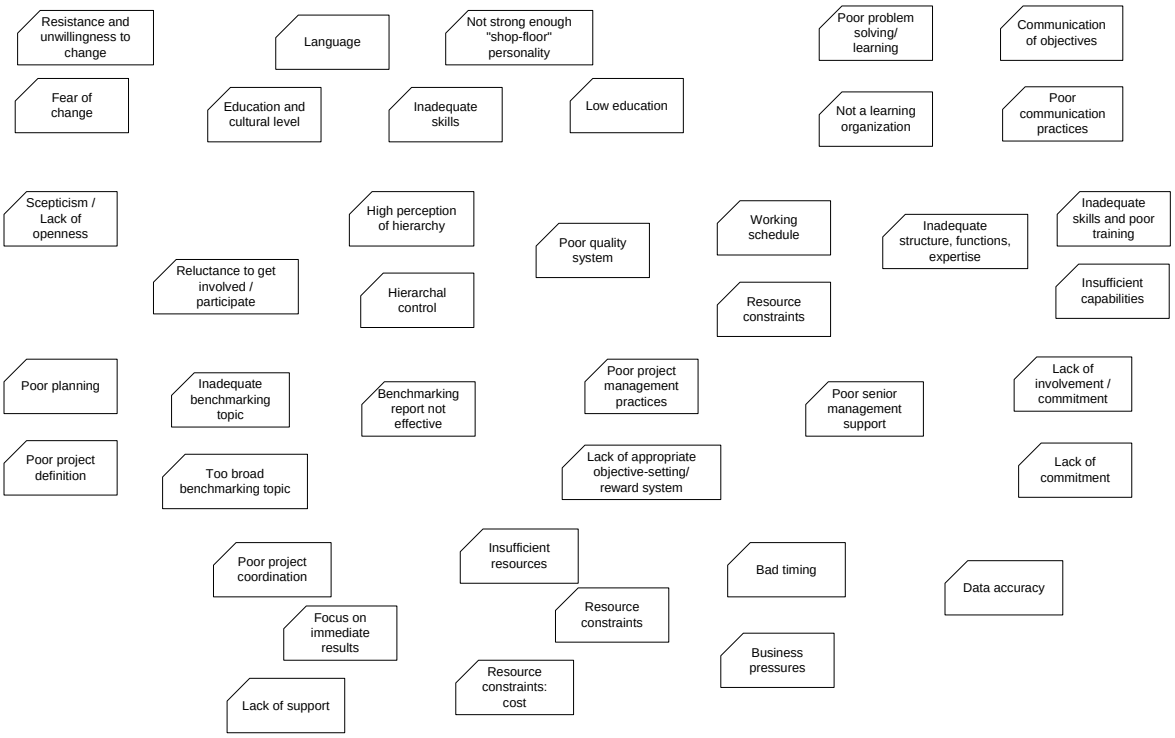
First, the records with the data from each interview were reviewed in order to identify the incidents or phenomena that point out to a barrier. The evidences of barriers were highlighted in the “Interview Guidelines and Data Collection” record.

Second, for each evidence of barrier encountered, we’ve searched for a correspondence in the categorized list of barriers drawn from the literature, developed in section 3.3. Next, we’ve attempted to assign a category code to the evidence of barrier. The objective was to find a category which reflects the data, and if found, classify that data bit.

Third, occasionally, we were not able to find an appropriate correspondence in the categorized list of barriers. In such cases, we attempted to develop a new category within the existing category framework. When we weren’t able to develop a new category or when we were in doubt, we left the evidence of barrier without a category code but highlighted it for later review. This process of data reduction and classification was highly iterative, as we often had to go back and forth to check a previously identified incident or phenomenon against an emerging category of barriers. Categories had to be reviewed, modified and extended as the analysis went on. Likewise, the incidents or phenomena pointing out to barriers had to be reviewed and category codes reassigned. The iterative approach was deliberate and was intended to ensure that the data analysis would integrate any emerging explanation of a barrier and would, therefore, be consistent throughout the analysis.

Fourth, we’ve attempted to give every evidence of a barrier a name which reflected the significance of the data. In case the evidence of a barrier had been assigned an existing category this was straight forward since the category definition would suggest a suitable name. However, in case the evidence of a barrier didn’t fit an existing category and was therefore pointing out to an emerging category, the process of naming was not always straightforward. In this case we had to base the naming of the evidence of barrier in the data itself (without the safety net given by the categorized list), and do it creatively. We generated 40 distinct barrier evidence names (synthesising the initial 105 incidents or phenomena encountered), as illustrated in Figure 13.

Figure 13 – Barriers from the case study: unstructured view



Obviously, the names given at this stage were reviewed and further synthesised when we grouped barriers by category, thus, inappropriate names were abandoned and errors mitigated.

Fifth, barrier evidences were brought together in a single data display. The data display includes the following fields: Barrier evidence name, Evidence, Interview Reference, and Classification. Table 18 gives the meaning of the data display fields.

Table 18 – Explanation of data display fields

Data display field	Explanation
Barrier evidence name	Name given by the researcher to synthesise the data evidence of a barrier.
Evidence	Set of data with the description of the incident or phenomena that pointed out to a barrier or a strategy to overcome a barrier. Most of the data evidences were collected during the interviews with informants.
Interview reference	Reference to the raw data collected at the interviews.
Classification	Category code to which the barrier can be assigned to.

The data displays contain all evidence of barriers derived from the case study, the classification of the evidence of barriers into categories, the data evidence of the incident or phenomenon that pointed out to a barrier and the reference to the interview record.

The barriers in the data displays were organized according to the hierarchical categorization of barriers drawn from the literature (see section 3.3), but also included the new categories of barriers that emerged during data reduction.

The data display brings together the work performed in the previous steps extracting the barrier evidences from the raw data to enable analysis (with the drawback of loosing its context, but allowing at the same time an easy retrieval of the source data). The data display is presented in Annex G.

Sixth, the organization of barrier evidences allowed for the critical review of barrier names (given in step 4) and for further synthesising evidences pointing to the same category of barrier, as presented in Table 19.

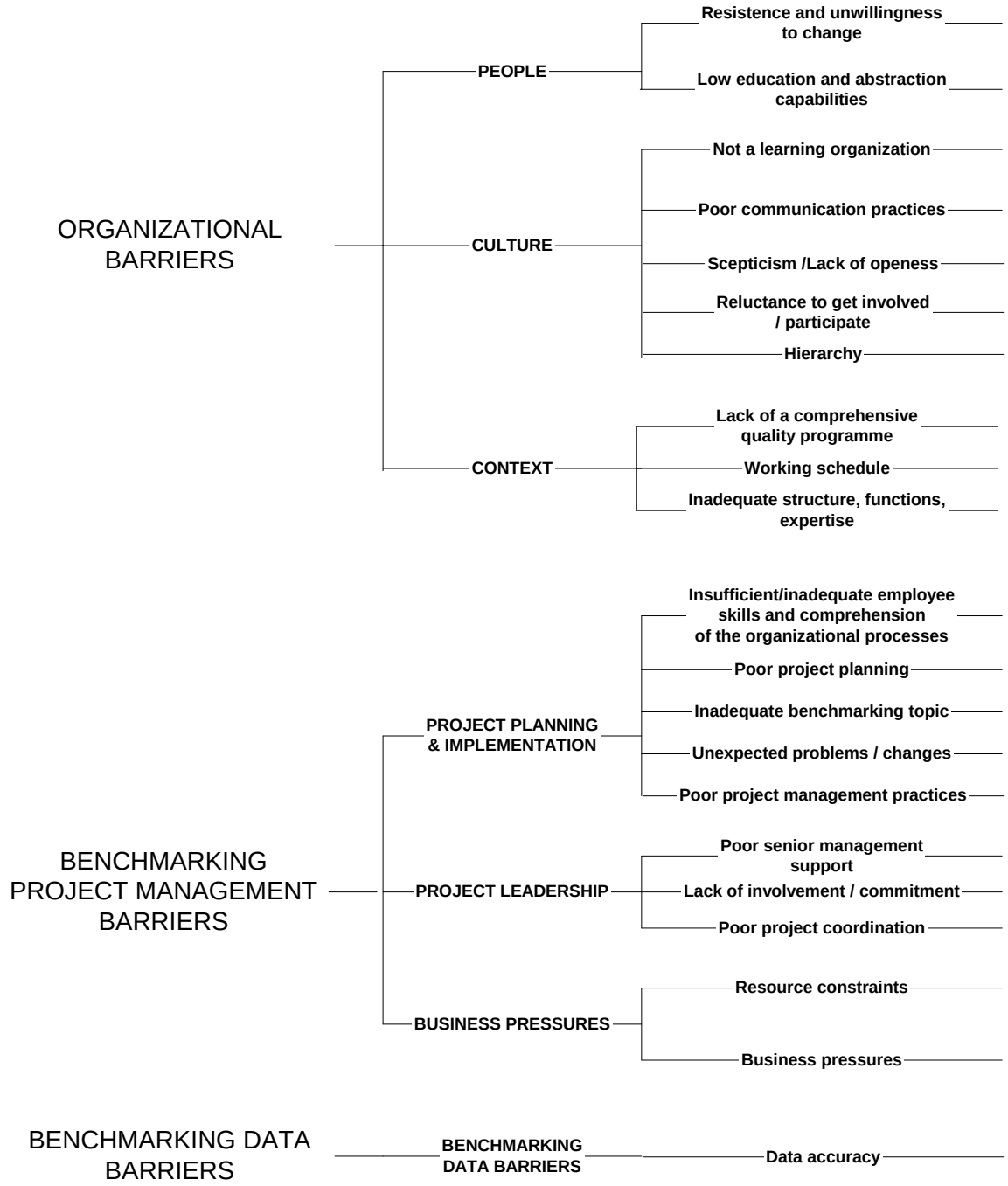
Table 19 – Synthesis of evidences of barriers from empirical research

Category of barrier	Barrier designation	Evidence of barrier
People	Resistance and unwillingness to change	• Fear of change • Resistance and unwillingness to change
	Low education and abstraction capabilities	• Language • Inadequate skills • Not strong enough shop-floor personality • Education and cultural level • Low education
Culture	Not a learning organization	• Poor problem solving/learning • Not a learning organization
	Poor communication practices	• Poor communication practices • Communication of objectives
	Scepticism / lack of openness	• Scepticism / lack of openness
	Reluctance to get involved / participate	• Scepticism / lack of openness
	Hierarchy	• High perception of hierarchy • Hierarchal control

Category of barrier	Barrier designation	Evidence of barrier
Context	Lack of a comprehensive quality culture	• Poor quality system
	Working schedule	• Working schedule • Resource constraints
	Inadequate structure, functions, expertise	• Inadequate structure, functions, expertise
Project planning and implementation	Insufficient/inadequate employee skills and comprehension of the organizational processes	• Inadequate skills and poor training • Insufficient capabilities
	Poor project planning	• Poor planning • Poor project definition
	Inadequate benchmarking topic	• Inadequate benchmarking topic • Too broad benchmarking topic
	Unexpected problems / changes	• Benchmarking report not effective
	Poor project management practices	• Poor project management practices • Lack of appropriate objective-setting/reward system
Project leadership	Poor senior management support	• Poor senior management support
	Lack of involvement / commitment	• Lack of involvement/commitment • Lack of commitment
	Poor project coordination	• Poor project coordination • Lack of support • Focus on immediate results
Business pressures	Resource constraints	• Insufficient resources • Resource constraint • Resource constraint: cost
	Business pressures	• Bad timing • Business pressures
Benchmarking data barriers	Data accuracy	• Data accuracy

The barriers found in the case study may be exhibited using the hierarchical categorization of barriers developed in section 3.3. This is presented in Figure 14.

Figure 14 – Hierarchical categorization of barriers found in case study



Seventh, if we compare the hierarchical categorization of barriers presented in Figure 14 with the hierarchical categorization derived from the literature (Figure 11), we note that out of the 21 barriers found in the empirical research, eight are new barriers. In these eight situations, we had no definition developed based on the literature, which could describe

accurately their meaning. We decided to develop a definition based on research evidences.

Now, along the process of categorizing barriers described in step number 3 of data reduction, we went on building an understanding of their meaning, grounded in the research evidences that pointed out to the barrier.

So, the development of the definitions was not done entirely at the end of the analysis. As the analysis went on and as we have assigned barriers to categories or developed new categories we have also reviewed the meaning of each barrier. In the end, we developed definitions for the eight new barriers, based on our understanding and on research evidences, which we present in Table 20.

Table 20 – Definition of barriers found in the case study

Barrier	Definition
A.1b – Low education and abstraction capabilities	*Difficulty in understanding the benchmarking concepts and low abstraction capacity. This is due to low educational level and lack of further life long training in languages and information technologies.*
A.2e – Scepticism / Lack of openness	*Reticence to novel initiatives that are not seen as important, nor taken seriously; lack of confidence that initiatives are going to result.*
A.2f – Reluctance to get involved / participate	*Unwillingness to contribute to the benchmarking process or take responsibilities. This is due to an organizational culture that does not stimulate participation of employees.*
A.2g - Hierarchy	*A high perception of hierarchy refrains employees from participating in benchmarking activities and exposing openly their points of view.*
A.3b – Working schedule	*Difficulties in maintaining team dynamics due to incompatible working schedules.*
A.3c – Inadequate structure, functions, expertise	*Difficulties of some organizational functions to respond to benchmarking challenges. This is due to lack of expertise to implement some of the actions or lack of appropriate organizational conditions.*

Barrier	Definition
B.1e – Poor project management practices	*Difficulties with the integration of the benchmarking initiative with the organizational process, in order to take advantage of the existing organizational capabilities. Difficulties to keep up with the schedule and lack of a progress report. Difficulties in quantifying the payback of improvements.*
C.b – Data accuracy	*Difficulties in making sure that data are accurate. This is due to poor information management practices.*

5.1.2.2. Incidence of barriers identified in the empirical study

In the previous section we've described how data was analysed in order to empirically derive barriers. We developed a categorized list of barriers and, in the case of the eight new barriers (i.e. identified in the empirical research and not identified in the literature) we developed a definition grounded on the research evidences.

In this section we examine the results obtained, and analyse the incidence of the barriers. We may look at the incidence of the barriers according to two dimensions: number of informants that pointed out the barriers and number of occurrences of each barrier.

According to Dey (1993), in qualitative analysis the number of informants is a more reliable measure, as the number of occurrences may be affected by data analysis. However, we believe that in specific situations, the number of occurrences may provide useful information when it comes to get a better insight on each barrier and we use this information in the further discussion.

Now, looking at the number of informants that pointed out barriers (our main dimension of analysis), we note that barriers like A.1b – Low education and abstraction capabilities, B.1e – Poor project management practices, B.3a - Resource constraints, B.2c - Poor project coordination, B.2a - Poor senior management support and B.3b - Business pressures were mentioned by a relatively high number of informants (four to six out of a total of seven informants), which may point out for relevant barriers.

We also note that other barriers, like A.2g – Hierarchy, A.3a - Lack of a comprehensive quality culture, B.1d - Unexpected problems / changes, A.1a - Resistance and unwillingness to change, A.2e – Scepticism / Lack of openness etc., were mentioned by only one or two informants, which might imply that these barriers are not so relevant, or at least that the empirical research provided little evidence of these barriers.

In order to concentrate our attention on the most important results, we've distinguished the barriers for which the empirical research provided plenty of research evidence from the ones where there was less research evidence. We've named this the incidence of the barrier in the case under study. The analysis of the incidence is particularly pertinent in the case of new barriers (the ones that were not identified in the literature review), given that, to justify the development of a new barrier, compelling research evidence should be needed.

In terms of incidence of the barrier in the case under study, the barriers identified have been graded as follows:

- High (H): Four or more informants presented evidences for this barrier.
- Medium (M): Three informants presented evidences for this barrier;
- Low (L): Only one or two informants presented evidences for this barrier;

We next present the incidence of barriers in the case under study according to the criteria mentioned above.

Table 21 – Incidence of barriers in the case under study

Category of barrier		Barrier designation	Number of informants	Number of occurrences	Incidence
A. Organizational barriers	**A.1.** People	**A.1a -** Resistance and unwillingness to change	2	2	L
		A.1b – Low education and abstraction capabilities	6	13	H
	A.2. Culture	**A.2a** - Not a learning organization	2	2	L
		A.2d - Poor communication practices	3	4	M
		A.2e – Scepticism / Lack of openness	2	5	L
		A.2f – Reluctance to get involved / participate	2	4	L
		A.2g - Hierarchy	1	2	L

Category of barrier		Barrier designation	Number of informants	Number of occurrences	Incidence
	A3. Context	**A.3a -** Lack of a comprehensive quality culture	1	1	L
		A.3b – Working schedule	**2**	**3**	L
		A.3c – Inadequate structure, functions, expertise	**3**	**7**	M
B. Benchmarking project management barriers	**B.1.** Project planning and implementation	**B.1a** – Insufficient / inadequate employee skills and comprehension of the organizational processes	2	3	L
		B.1b - Poor project planning	2	2	L
		B.1c - Inadequate benchmarking topic	2	8	L
		B.1d - Unexpected problems / changes	1	1	L
		B.1e – Poor project management practices	6	9	H
	B.2. Project leadership	**B.2a** - Poor senior management support	4	5	H
		B.2b - Lack of involvement / commitment	3	4	M
		B.2c - Poor project coordination	5	5	H
	B.3. Business pressures	**B.3a** - Resource constraints	6	14	H
		B.3b - Business pressures	4	7	H
C. Benchmarking data barriers	**C.** Benchmarking data barriers	**C.b** – Data accuracy	2	3	L

As illustrated in Table 21, the incidence of barriers according to the three criteria is the following:

- **High incidence (six barriers)**: A.1b – Low education and abstraction capabilities, B.1e – Poor project management practices, B.2a - Poor senior management support, B.2c - Poor project coordination, B.3a - Resource constraints and B.3b - Business pressures.
- **Medium incidence (three barriers)**: A.2d - Poor communication practices, A.3c – Inadequate structure, functions, expertise and B.2b - Lack of involvement / commitment.
- **Low incidence (12 barriers)**: A.1a - Resistance and unwillingness to change, A.2a - Not a learning organization, A.2e – Scepticism / Lack of openness, A.2f – Reluctance to get involved / participate, A.2g – Hierarchy, A.3a - Lack of a comprehensive quality culture, A.3b – Working schedule, B.1a – Insufficient / inadequate employee skills and comprehension of the organizational processes, B.1b - Poor project planning, B.1c - Inadequate benchmarking topic, B.1d - Unexpected problems / changes and C.b – Data accuracy.

We may note that most of the barriers were graded as **low incidence**, i.e. they were pointed out by one or two informants.

For the barriers that were previously identified in the literature review (A.1a - Resistance and unwillingness to change, A.2a - Not a learning organization, A.3a - Lack of a comprehensive quality culture, B.1a – Insufficient / inadequate employee skills and comprehension of the organizational processes, B.1b - Poor project planning, B.1c - Inadequate benchmarking topic and B.1d - Unexpected problems / changes), the low incidence may signify that the presence of these barriers did not have a strong impact on the implementation of BEST. Yet, we may consider these barriers relevant for our research as it validates barriers pointed in the literature.

However, in what concerns new barriers (A.2e – Scepticism / Lack of openness, A.2f – Reluctance to get involved / participate, A.2g – Hierarchy, A.3b – Working schedule and C.b – Data accuracy), the analysis of their incidence is critical. These barriers were identified in the case under study but have no literature support. As their incidence is low, we only crossed a limited number of sources of information (i.e. we lack different perspectives on the overall process and we could not take advantage of different experiences and different mindsets) and therefore the internal validity is also low.

Therefore we cannot state that these barriers are likely to appear in other benchmarking initiatives similar to BEST. Further research needs to be undertaken in order to analyse whether these barriers are relevant for internal benchmarking initiatives or not.

The other barriers, graded with **high or medium incidence**, are considered relevant as we were able to cross a relatively high number of sources of information in order to perform data triangulation. So we benefited of different perspectives on the overall process and could take advantage of different experiences and mindsets. For these reasons we believe that both the barriers identified in the literature review and the new ones are very important for our analysis.

5.1.2.3. Strategies to cope with barriers

In spite of the informants being questioned about the strategies to overcome barriers, we got no relevant results. The data we obtained on the strategies was so little and so irrelevant that we decided not to treat the strategies, taking it out of the scope of our empirical research. This was actually frustrating as we alleged that the empirical data would complement the scarce results from the literature review. However, we accept that we were not able to recognize substantial/consistent strategies to cope with identified barriers to benchmarking and we look into the underlying reasons.

We believe this might have happened because the support received from the literature was poor, so it was difficult to go into the field and explore strategies that were practically unknown, instead of testing/validating strategies.

Additionally, in the case we studied, the benchmarking initiative was finishing the first cycle. It was too early to identify validated/successful strategies for a number of reasons.

First, some barriers were identified, yet probably only in the second round of benchmarking will the company devise strategies to cope with them, and will there be more information about barriers and appropriate strategies.

Second, it is difficult to measure how the company is coping with barriers; the process is still ongoing, and the company is trying to find ways to solve barriers to the benchmarking initiative.

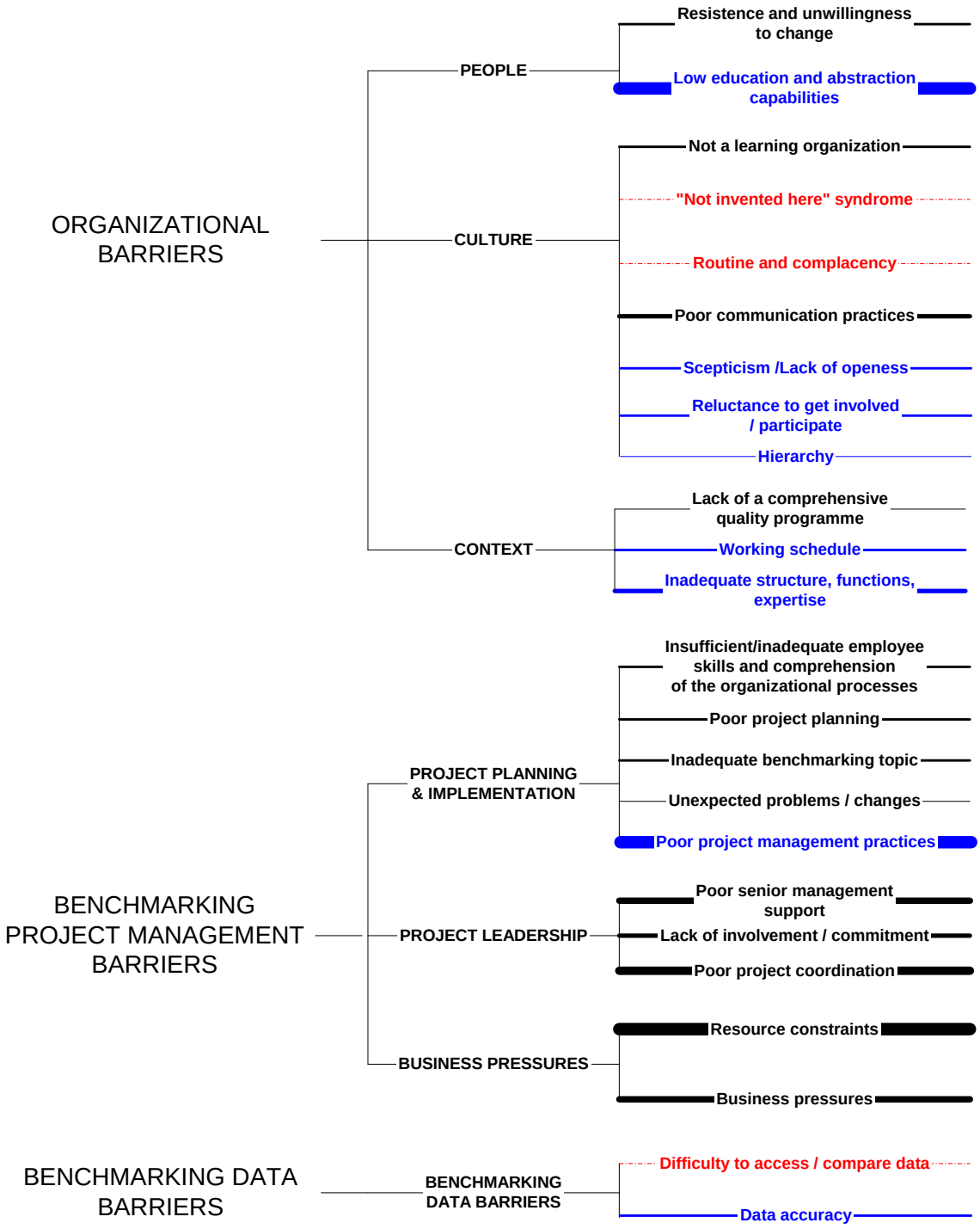
Finally, it is not yet possible to evaluate whether the applied strategies were successful. This should be done later, sometime after the end of benchmarking initiative or in the second round.

5.2. Discussion

In this section we look at the results and get a better insight on their meaning. We attempt to understand why differences exist between barriers identified in the empirical research and barriers found in the literature and at what point case specificities may explain these differences.

We start by performing a comparison between the barriers identified in the empirical research and the ones identified in the literature review. This is illustrated in Figure 15. We highlight in blue the new barriers (barriers found in the empirical research but not identified in the literature review) and in red the barriers not found in the empirical research (barriers identified in the literature review and not present in the empirical data). In black we exhibit the barriers confirmed by the research evidence (barriers identified in the literature review and validated by the empirical research). Note that the width of the lines is proportional to the incidence of barriers (number of informants), as shown in section 5.1.2.2.

Figure 15 – Categorized barriers: comparative view of literature and empirical evidences



Legend: **Blue**: New barriers **Red**: Barriers not found in the empirical research **Black**: Confirmed barriers

As we may note from Figure 15, there is a considerable correspondence between the barriers to benchmarking found in the empirical research and the ones drawn from the literature, i.e. 13 barriers were validated by the empirical research. However, there are

three barriers drawn from the literature that were not confirmed by empirical evidence, and there are eight barriers found in the empirical research, yet not identified in the literature.

We look closely at each one of these situations, as follows.

In section 5.2.1 we present the barriers found in the literature and supported by research evidence. Where applicable, we discuss whether the barrier definitions developed after the literature review can be further refined with research results.

In section 5.2.2 we present the barriers identified in the literature review for which there was no research evidence indicating its presence in the case under study. Several explanations are considered and discussed.

Third, in section 5.2.3 we present the barriers to benchmarking found in the case under study, but not found in the literature. We develop a definition for each emergent barrier, grounded in the research evidence. We examine the pertinence of the emergent barriers and attempt to explain why they appeared in the case under study.

5.2.1. Barriers supported by research evidence

Most of the barriers to benchmarking drawn from the literature (see section 3.3), were also identified in the case under study. In this section we present these barriers and discuss their emergence from the empirical data.

Thirteen barriers derived from the literature were confirmed by the empirical research. First, we discuss the barriers with high incidence, i.e. with stronger evidences supporting its presence in the case, then we discuss the barriers with medium incidence and we finish examining the barriers with low incidence.

In the discussion of barriers with high incidence we include quotations collected from the informants during the interviews in order to better illustrate the barrier. The quotations were taken from the data displays in Annex G (sometimes complemented by the interview/field notes) and indicate, in brackets, the interview reference in order to trace back the quotation to the interview notes.

High incidence

The first barrier we look at is **B.2a - Poor senior management support,** defined as: “Senior management’s failure to support and give sufficient authority to benchmarking implementers”.

There are several research evidences supporting that there was poor senior management support and that this was a barrier to benchmarking. This was noticed in: a) the failure to support the initiative and the coordinator, particularly at implementation stage; b) the inexistence of a top management benchmarking sponsor (locally, in the plant); c) the absence of BEST issues in top management review meetings; and d) the lack of pressure to get things done, from top management.

Whilst talking about project leadership, one informant (I2-Q14) stated that "top management failed to give adequate support to the BEST initiative, particularly during the action plan's implementation stage, when support and commitment was most needed". The same informant suggested that support could be in the form of "highlighting BEST importance and priority within their team, supporting the BEST actions in the area and allowing time for their team to implement the actions". Another informant (I5-Q9) added that "if top management does not appear, does not ask and does not accompany [BEST initiatives/meetings] the results are not the same".

If not managed properly this barrier can jeopardise many benchmarking improvement initiatives and freeze them, as nobody is concerned about the lack of progress and senior management is not asking for it.

This barrier can be related to the project management practices of the company. Other companies, with good project management practices might be able to support the benchmarking project in such a way that this barrier is overcome.

The case study evidence suggests that the barrier definition can be further improved by increasing senior management's follow up of the benchmarking project. The suggested new definition is: "Senior management's failure to support/give sufficient authority to benchmarking implementers and to oversee the benchmarking initiative".

We conclude that B.2a - Poor senior management support is a barrier that companies should watch for when implementing benchmarking, in order to devise strategies to minimize or overcome it. On one hand, it is expected to identify this barrier in different types of benchmarking or distinct implementation processes. On the other hand, some organizations might be better equipped to overcome this barrier than others. This should depend on the quality of their project management practices and on how they apply them to the implementation of the benchmarking project.

Second, we look at **B.2c - Poor project coordination**, which is defined as: “Management failure to organize effectively the implementation activities and cope with uncertainty and dynamic expectations that arise in the benchmarking process.”

There are strong research evidences supporting that poor project coordination constituted a barrier to the benchmarking study. The evidences were collected from 5 informants and state that: a) coordination support from BEST office was below expectation; b) some initiatives were not given continuity by BEST office, which resulted in low morale and led people to give up participating in the initiative.

One informant (I3-Q7) illustrates this barrier as follows: “BEST office defrauded the initial expectations; […] the engine failed; […] some initiatives were not given continuity by BEST office, which resulted in disorientation and low morale in the plant”.

Note that BEST was coordinated centrally by the BEST office, located at the group’s head offices. This is common of internal benchmarking. The plant under study expected active coordination and communication from BEST office. As this didn’t happen and as the structure in the plant under study was not prepared to take forward BEST by itself, progress slowed down and some initiatives were not carried out.

The research evidences are related to poor coordination and failure to give continuity to initiatives. The definition developed after the literature is broader, and encompasses the difficulties to cope with uncertainty. We consider the theoretical definition adequate to describe the barrier.

In summary, the barrier B.2c - Poor project coordination is critical to the implementation of benchmarking. It is expected to find this barrier in other types of benchmarking as well. Companies that apply good project management practices to the implementation of benchmarking can minimize the impact of this barrier.

Third, we look at **B.3a - Resource constraints,** defined as “Unavailability or insufficiency of time, money and/or expertise required to attain the benchmarking objectives.”

There are strong research evidences supporting that resource constraints represented a barrier to benchmarking. Six informants reported it. Most evidences concern: initiative overload, lack of time, financial resources, people availability, and people allocation to specific tasks.

Quite often, the informants referred to production pressures, lack of time and to the difficulty of releasing people from their daily routine tasks. We present next some illustrative statements. “Production pressures primes over everything else. This has an

impact on people availability, on the unwillingness of managers to free up people […]" (I7-Q3). "People don't have enough time to develop work unrelated with their day-to-day job […] there is no time to think up in detail the ideas and actions [related with BEST]" (I6-Q10). "People are soaked into their routine tasks and they argue there is no time to spend on non-routine projects" (I2-Q13). "Individuals were not released from some of their routine tasks ion order to dedicate themselves to BEST initiatives. This was my case" (I2-Q15).

No research evidence pointing to the unavailability of expertise required to implement benchmarking was found. At a first glance this is rather surprising, given that it was the first time the plant was undertaking benchmarking and nobody had any previous experience in this field. Thus, one would expect difficulties related with lack of benchmarking expertise. We believe the explanation is twofold: a) BEST is an internal benchmarking initiative coordinated by the BEST central office. BEST central office has expertise on benchmarking and guides the plant under study in its implementation process. Any doubts regarding benchmarking can be clarified with BEST office and this reduces the effects of the poor benchmarking expertise in the plant under study. b) BEST follows the diagnostic benchmarking process, which is quite structured and thus, smoother to implement than the typical benchmarking process.

The definition developed after the literature is in conformity with the research findings.

We conclude that B.3a - Resource constraints is a critical barrier in the implementation of benchmarking of any type. We found enough evidence of this barrier in the case under study, even though we consider that the characteristics of the initiative studied (diagnostic benchmarking performed internally) made it less exposed to this barrier than other types of benchmarking initiatives. This is a barrier that needs to be watched closely to avoid jeopardizing a benchmarking initiative.

Fourth and last, we look at **B.3b - Business pressures,** defined as "Emergence of competing activities, other priorities or uncontrollable factors resulting from either internal or external business environment. This leads to the necessity to reassess the benchmarking process for compatibility with business changes".

There are strong research evidences supporting that business pressures affected the benchmarking initiative, constituting a barrier to its implementation. Seven evidences of this barrier were collected from 4 informants. Most evidences concern: a) competing activities, b) other priorities (e.g. cost reduction, production duties), c) external factors.

One informant (I2-Q6) argued that “BEST coordination was not compatible with demanding production responsibilities. When work pressure increased, the production responsibilities primed over BEST”. According to another informant (I3-Q13), BEST was not a priority anymore: “I don’t think that today the BEST initiative is considered a priority in the group”.

Organization’s managers have to choose constantly among competing activities and define priorities. Thus, B.3b - Business pressures is a barrier that we expect to be found in other benchmarking studies. Note that only if benchmarking is seen as a benefit, a better option than other competing activities, will it be given priority.

Medium incidence

First we look at **A.2d - Poor communication practices**, defined as “Lack of room, opportunity and incentives for the employees to communicate with each other, within and across functions and among all levels of the hierarchy, both in a formal and informal manner.”

There is some research evidence supporting that there were poor communication practices in place. Examples are: a) the conscience that the organization was not very good at communicating with employees; b) the fact that there were difficulties communicating BEST objectives to employees; c) the observation that the HR department didn’t channel effectively BEST information to/from employees.

The evidences refer mostly to communication problems between management / HR and employees. There were no problems reported within functions or across functions of the same level (on issues concerning the benchmarking study). Nevertheless, the definition seems appropriate.

Good communication is necessary to the implementation of benchmarking, thus an organization with A.2d - Poor communication practices is expected to have difficulties in implementing the initiative. Employees need to feel comfortable discussing improvement ideas with peers and superiors, and the results of improvements need to be communicated to employees. Good communication is vital to a benchmarking initiative of any type with any implementation process.

Second and last, we look at **B.2b - Lack of involvement / commitment,** defined as: “Failure to mobilize and engage concerned employees and managers in benchmarking. “

There is some research evidence supporting that there was lack of involvement and commitment to the benchmarking study and that this constituted a barrier to the

implementation of benchmarking. We found evidences for this barrier, such as: a) people (employees and managers) not involved in BEST meetings didn't feel part of the initiative; b) some managers didn't release their subordinates to participate in BEST initiatives; c) after some time the BEST office showed lack of commitment to the initiative.

The empirical findings are in line with the definition developed from the literature.

The empirical data confirmed that the barrier B.2b - Lack of involvement / commitment is critical in the case of internal benchmarking implemented using the diagnostic process. It is expected though that in benchmarking initiatives of other types, or following the typical implementation process this barrier can also be important since all types/processes of benchmarking rely heavily on employee involvement and commitment in the improvement initiatives associated with benchmarking.

Low incidence

First, we look at **A.1a – Resistance and unwillingness to change** defined as: "Employee reluctance to cooperate and get involved when change is required. For instance, this is due to the stress when required to move out of comfort zones, the challenge of learning new skills or the fear of exclusion."

There is little research evidence supporting that there was fear of change from employees involved in benchmarking. The evidences found refer to fear due to project novelty.

We can argue that there were some indications of A.1a – Resistance and unwillingness to change in the empirical research but they are weak and refer uniquely to the novelty of the project. If employees see benchmarking as an activity that brings unwanted change, it is likely that this barrier becomes more critical.

Second, we look at **A.2a – Not a learning organization** defined as: "Organization that does not favour learning practices, such as systematic problem-solving, experimentation, learning from past experiences, learning from others and transferring knowledge throughout the organization. For instance, this is due to fear of exposing organizational weaknesses, lack of training and development or employees not used to seek and share knowledge."

There is little research evidence supporting that the organization does not favour learning practices. The poor learning practices indicated by empirical data were related with the apprehension to speak freely and express opinions without fearing consequences; and the idea that only managers can solve the problems.

Third, we look at **A.3a – Lack of a comprehensive quality culture** defined as: “Poor understanding, involvement or commitment of employees in providing a product or service that fulfils customer’s needs”.

There is little research evidence supporting that there was the lack of a comprehensive quality program and that this might have constituted a barrier to benchmarking. It’s mentioned that the quality system is not yet mature and that some quality concepts are not yet understood in the organization, but the evidences that this constituted a barrier to benchmarking in the case under study are very weak.

Fourth, we look at **B.1a – Insufficient/inadequate employee skills and comprehension of the organizational processes**, which is defined as “Lack of adequate and sufficient employee skills to implement benchmarking, aggravated by poor understanding of the organization’s products and services and their linkage to the rest of the organization, for instance, this is due to inadequate training given to the employees”.

There is little research evidence supporting that there was insufficient comprehension of the organizational processes and that this constitute a barrier to benchmarking. The evidences point to poor understanding of BEST process and concepts, and lack of specialization (there is always the same people doing a variety of things).

There are no evidences supporting the poor understanding of organization’s products and services and its linkage to the rest of the organization. In this case, we consider that the people involved in benchmarking had a good understanding of the organization’s products and services.

Fifth, we look at **B.1b – Poor project planning**, defined as “Failing to define clearly expectations, goals, tasks, resources and deadlines. This requires the investment of time and effort”.

There are few evidences supporting that poor project planning constituted a barrier to benchmarking. It was mentioned that it was difficult to agree the BEST action plan and that there was lack of ownership to take actions forward. One of the recognised weaknesses in BEST implementation has to do with the implementation of BEST actions.

Sixth, we look at **B.1c – Inadequate benchmarking topic**, defined as “Setting out a benchmarking project whose topic is too broad or poorly articulated”.

There are a few research evidences supporting the argument that BEST benchmarking topic was too broad, and thus, inadequate, and that this constituted a barrier to BEST implementation, but only 2 informants provided evidence of this barrier.

The evidences point that BEST objectives were not clear, that the questionnaire was too broad, that it included some issues that didn't concern the organization, and that other issues were "not the business" of the BEST team (they were the business of top management).

The research evidences are in line with the theoretical definition but the evidences are not strong enough to assert that this barrier was a major problem in the case under study.

Seventh and last, we look at **B.1d – Unexpected problems / changes**, defined as "Emergence of unforeseen major problems or last minute schedule and technical changes during the implementation".

There is only one reference to this barrier in the case study. It had to do with difficulties in interpreting the BEST report in order to get relevant results/conclusions. It was expected that BEST report would give clear indications as to the areas/practices requiring improvement and how improvement could be pursued, but one informant points out that this was not the case.

5.2.2. Barriers not supported by research evidence

Some barriers to benchmarking drawn from the literature (see section 3.3) were not encountered in the case under study. In this section, we present the barriers for which no research evidence was found and we discuss the possible underlying reasons.

The first barrier we look at is **A.2b - Not invented here syndrome,** defined as: "Organizations that reject ideas, methods, practices that come from outside the organization because these ones are believed to be inferior to the ones used and/or developed internally, or it is believed that the organizational operations are too specific and no external solutions would apply."

Diagnostic benchmarking is less exposed to this type of barrier than other benchmarking processes because it usually relies in credible studies, frequently led by universities, industrial associations or consultancy firms.

Also, this type of barrier is more observable when the benchmarking study involves companies with similar products/processes, when there is competition over who has got the best practices. Thus, internal benchmarking is less exposed to this barrier.

In the case under study, this barrier was not observed for the following main reasons:

1) The BEST benchmarking study was perceived by the organization as having great credibility, since it had been developed by a reputed professor of London Business School

and was based in extensive studies in Europe and abroad. This message was passed to the organization during the first BEST campaigns and removed potential concerns over the trustworthiness of the study.

2) The benchmarking study didn't involve visits to other plants, so the openness to ideas coming from outside the company (where the barrier lies) was not fully tested.

3) The organization is quite recent (the plant was built in 1991) and most of its technology and know-how came from other group's companies. Thus, the organization is used to learn from others, and has no problem using ideas, methods and practices that were not developed by them.

The empirical research evidences point out that the barrier A.2b - Not invented here syndrome is not critical in the case of a diagnostic benchmarking process performed internally. It is expected though that this barrier may be observed when the benchmarking is not internal and when a typical benchmarking process is used.

Next we look at **A.2c - Routine and complacency.** This barrier was defined as: "Performing a work task or process in a mechanical or automatic way, without questioning it and without feeling the need to improve."

The organization faces the challenges: 1) the competition from manufacturing plants in Asia keeps the pressure on productivity, service, quality and costs; 2) there is the notion that processes need to be improved.

It is noticeable that the organization is conscious of the need to improve, to keep on improving its capacity and processes. In its short history, the organization had three major expansion phases, in 1991, 1997, and 2001. Thus, the organization is used to change, to new machines, more people, new jobs. There wasn't much time to let routine take over. Therefore, it is possible that the organization has some specificity that makes it less likely to face this barrier. This may explain why no evidences were found for this barrier in BEST.

Last we look at **C.a - Difficulty to access / compare data**, which is defined as: "Problems in obtaining and using benchmarking data. This is due to confidentiality issues, incomparable data or uncooperative partners".

The BEST benchmarking study was performed internally, thus there were no confidentiality issues, data was readily available and fairly comparable, and data providers were cooperative. On the other hand, diagnostic benchmarking is very structured and is

designed to facilitate data comparison. This explains the reason why no evidence was found for this barrier in the empirical research.

We conclude that C.a - Difficulty to access / compare data is not a critical barrier in an internal benchmarking initiative. In the empirical research we conducted, no evidences were found pointing to this barrier. Yet, we consider this may be a very critical barrier when benchmarking comparisons involve data coming from different companies, with different concepts, indicators, measures and data management methods. Further research is required to evaluate how critical this barrier is in other benchmarking initiatives.

5.2.3. New barriers emerging from research evidence

The empirical research presented evidences of eight new barriers to benchmarking. In this section we look at these barriers and discuss their emergence.

The eight new barriers have different incidence in the empirical research, i.e. three have high or medium incidence and five have low incidence.

As mentioned in section 5.1.2.2, the three barriers with high or medium incidence are more likely to appear in similar cases, whilst the five ones with low incidence may require future investigation in order to address their relevance for similar cases. We begin by explaining the emergence of barriers with high or medium incidence and next we proceed with the explanation of the ones with low incidence.

In the discussion of barriers with high or medium incidence we include quotations collected from the informants during the interviews in order to better illustrate the barrier. The quotations were taken from the data displays in Annex G (complemented by interview/field notes) and indicate, in brackets, the interview reference in order to trace back the quotation to the interview notes.

High and medium incidence

The first barrier we look at is **A.1b - Low education and abstraction capabilities**. This barrier was defined as: “Difficulty in understanding the benchmarking concepts and low abstraction capacity. This is due to low educational level and lack of life long training in languages and information technologies”.

The researcher collected 13 evidences of this barrier from 6 informants. It was considered that the concepts used in BEST were difficult to understand by most people and that this had a great impact on people’s contribution to the initiative. It was also considered that

people involved in BEST had difficulties in abstracting from their daily work, discussing issues of more general interest.

Several informants argued that the educational level constituted a barrier. One informant (I6-Q1) argues that “The cultural and literacy level and knowledge of people was a barrier. This barrier was essential when we discussed the questionnaire”, and that “We lost a lot of time when discussing the questionnaire due to the low educational level and comprehension difficulties” (I6-Q5). The differences in educational levels among BEST team members and the difficulties this caused in the team discussions is illustrated by another informant (I4-Q1): “Not everybody spoke the same language in the BEST team [and] this made discussion a problem”.

We believe that this barrier was identified for a number of reasons. On the one hand, BEST looks at service practices and performance issues whereas the company is fully manufacturing oriented and most of its workforce is made of operators. In addition, the immediate customer of the plant is the parent company and very few employees have actually “faced” a final customer. The feedback the plant gets from its final customer is mostly in the form of complaints/satisfaction statistics, which is fine for monitoring quality levels, but has the drawback of keeping the final customer “too far away” from the plant. All this raises the ongoing discussion on whether the plan has to deliver service to its immediate customer (the parent company) or to the final customer. To some extent, this lack of definition can explain why service related concepts and principles are little understood by employees.

As it is important that the people involved in a benchmarking study fully understand the concepts being studied and have abstraction and analysis capabilities, we consider that a benchmarking study performed with a team made of people with low education and abstraction capabilities will face difficulties in delivering the expected results from the initiative.

We conclude that A.1b - Low education and abstraction capabilities is an important barrier that may appear in other benchmarking initiatives. When selecting benchmarking teams, care should be taken in order to choose elements who are knowledgeable and business aware, in order to understand the concepts and principles associated with benchmarking and how to apply these in the organization. So, this is one important barrier that should be addressed in benchmarking initiatives.

Then, we look at **A.3c - Inadequate structure, functions, expertise**. This barrier was defined as: “Difficulties of some organizational functions to respond to benchmarking

challenges. This is due to lack of expertise to implement some of the actions or lack of appropriate organizational conditions".

The researcher collected 7 evidences of this barrier from 3 informants and most of them reported that the organization lacked expertise to implement some actions and that the structure and functions didn't support the benchmarking study properly.

Several informants argued that some functions were not able to support the BEST initiative properly, particularly the HR function, as illustrated by the following comments "The organization's HR function had difficulties in supporting the BEST initiative, namely in what concerns the communication of BEST objectives and its progress and the reception of feedback from employees". "The HR function was not resourceful at devising the required improvement actions, nor at implementing these" (I2-Q12).

We believe that a key aspect of benchmarking is the ability to implement the actions / changes identified during the benchmarking study. Benchmarking identifies the direction and the best practices, but relies on the existing structure, functions and expertise to implement the changes. An organization with an inadequate structure, with functions poorly organized and with lack of expertise in key areas will find it difficult to implement some of the actions / changes required by benchmarking.

Consequently, we believe that A.3c - Inadequate structure, functions, expertise is an important barrier that needs to be considered in any type of benchmarking initiatives. Actually, in diagnostic benchmarking we believe this is not so critical, as this type of initiative is not as demanding as typical benchmarking. The latter one is less structured, involves external parties and will require even further expertise, as well as an appropriate organizational structure to put up with the underlying challenges.

One cannot expect an organization to change its structure or increase the expertise of its people in order to undertake benchmarking, yet it may overcome this barrier by: a) making good use of its competences and b) delivering appropriate benchmarking training to the people involved in the benchmarking process.

Last, we look at **B.1e - Poor project management practices**. This barrier was defined as: "Difficulties with the integration of the benchmarking initiative with the organizational process, in order to take advantage of the existing organizational capabilities, difficulties to keep up with the schedule and lack of a progress report and difficulties in quantifying the payback of improvements".

The researcher collected 9 evidences of this barrier from 6 informants and the evidences show that this barrier was particularly strong in the case under study. It also shows that the consequences of this barrier were quite negative: 1) the organizational capabilities were not fully used to help implementing benchmarking; 2) the lack of continuous communication/feedback of progress led people to believe that the initiative was abandoned.

Comments made by informants illustrate the barrier B.1e - Poor project management practices. One informant argues that “Instead of aligning the BEST initiative with organizational processes in place there was a tendency to treat it as if it had nothing to do with anything else” (I3-Q11). The same argument is supported by other informants. This highlights the poor integration of BEST initiative with existing organizational processes. Another informant (I3-Q12) recognises that “We were not able to keep the schedule of some of the improvement initiatives. Successive delays were registered.” This concern is also shared by other informants. Another problem reported by informants had to do with the lack of a project progress report: “It would have helped us if we knew where we were at any time […] we lost track of how things were going” (I4-Q6).

We conclude that B.1e - Poor project management practices is an important barrier, as it is important to fully utilize the available resources to achieve defined objectives. In organizations where the structure, functions and expertise are insufficient to support the benchmarking study, this turns more critical. We believe that this barrier should be duly addressed in benchmarking initiatives.

Low incidence

Now, let us analyse the barrier **A.2e - Scepticism / Lack of openness**, which is defined as: “Reticence to novel initiatives that are not seen as important nor taken seriously or lack of confidence that initiatives are going to result”.

The researcher collected 5 evidences of this barrier from 2 informants and the data showed that employees are not used to get involved in this sort of initiatives and they don’t believe these might bring some results. They think there is nothing else to do that could lead to improvement. This is mainly due to previous experiences that employees had with this sort of initiatives and that were not very successful, leading to the impression that things get discussed but nothing is done in the end.

We consider that if a benchmarking study is seen by involved employees with scepticism and lack of openness, this constitutes a barrier to the progress of benchmarking.

Overcoming the barrier is in the hands of benchmarking leaders, which need to promote the initiative and prove to the employees that the initiative is worth their commitment and effort to get involved. The sceptics need to be involved and committed or it will be difficult to achieve the benchmarking objectives.

There is little research evidence supporting this barrier, as only two informants reported it. Yet they highlighted it several times, so in spite of the little incidence of A.2e - Scepticism / Lack of openness, we consider that it may be worth validating it in future studies.

Next, we look at **A.2f - Reluctance to get involved / participate**, defined as: "Unwillingness to contribute to the benchmarking process or take responsibilities. This is due to an organizational culture that does not stimulate participation of employees".

The researcher collected 4 evidences of this barrier from 2 informants and empirical data reveal that the organizational culture does not promote employee participation, thus employees prefer not to get involved and not to take responsibilities.

We consider that, to be successful, benchmarking needs to rely on people's involvement and participation. Just as in the case of the previous barrier (Scepticism/Lack of openness), overcoming this barrier is at the hand of benchmarking practitioners, who need to overcome the reluctance of the employees to get involved in benchmarking.

We do not have much research evidence supporting this barrier, as only two informants reported it (its incidence was low). Thus, we consider that A.2f - Reluctance to get involved / participate requires validation in future studies in order to demonstrate its relevance.

Then, we look at **A.2g – Hierarchy**. This barrier is defined as: "High perception of hierarchy refrains employees from participating in benchmarking activities and exposing openly their points of view".

The researcher collected 2 evidences of this barrier from one informant. The informant that reported this barrier is a foreigner from a country (i.e. UK) where hierarchy does not take the same expression as it does in Portugal. There are two possibilities explaining why only this informant reported this barrier: a) the foreigner informant was more sensitive to hierarchy issues and was able to sense this problem which was not perceived by the other informants; or b) the foreigner informant interpreted wrongly the difficulties he observed in the BEST process as an hierarchal barrier, maybe influenced by his bias over Portugal being more traditional in what concerns organizational structures, with plenty of hierarchal levels, many regulations and very formal communication channels.

One of the principles behind benchmarking is the use of teams, namely teams directly involved with the work, processes or products one wants to improve. These teams need to be empowered and take ownership and responsibility over the improvement initiatives to be implemented. Most of these initiatives are implemented by the teams themselves, and take the form of changing the way they were used to do things and adopt a best practice. One important sub-product of benchmarking is to get people involved and committed to continuous improvement, always looking forward for better ways to their work. Now, this kind of team empowerment, involvement, and commitment is very difficult to gain unless employees feel free to participate in benchmarking initiatives (and others) and openly share their points of view. And in order to do this, the hierarchy needs to be supportive and cannot "scare" employee participation and discussion.

The use of teams is required in all types of benchmarking (not only internal benchmarking) and in all processes (not only in diagnostic benchmarking); therefore this barrier is relevant to other benchmarking initiatives.

Albeit, we do not have much research evidence supporting this barrier, as only one informant reported it, we consider that an A.2g – Hierarchy that is not supportive of employee participation and discussion may be worth validating it in future studies.

Next, we look at **A.3b - Working schedule**, which is defined as: "Difficulties in maintaining team dynamics due to incompatible working schedules"

The researcher collected 3 evidences of this barrier from 2 informants. Even though only two informants reported this barrier the evidences are compelling. It was difficult to arrange team meetings between people working different shifts without affecting their resting period.

The implementation of benchmarking involves frequent interaction and meetings between the people involved in the initiative, thus incompatible working scheduled might constitute a barrier. This was an issue in the case of BEST because the plant works on 3 shifts, 24 hours a day, and there were people involved in BEST from all shifts. Thus, this is an issue for companies where the people involved in the benchmarking initiative are drawn from different shifts. This barrier is not dependant on the type of benchmarking, so it might be present in other types when teams are drawn from different shifts.

One "tempting" strategy to overcome this barrier would be to select the benchmarking team from the same working shift. It is true that is would facilitate team meetings. But, on the other hand, the benefits of involving people from different groups, all across the

company, in the discussion and decision would be reduced, making implementation of improvement initiatives an even harder job.

There is limited research evidence supporting this barrier. We've also concluded that the barrier only is relevant to companies working different schedules. Thus, we conclude that A.3b - Working schedule may be considered by company implementing benchmarking that work different schedules and where benchmarking teams are drawn from all working schedules.

Last, we look at **C.b - Data accuracy**, which is defined as: "Difficulties in making sure that data are accurate. This is due to poor information management practices".

The researcher collected 3 evidences of this barrier from 2 informants. In the case of BEST, it was argued that the organization's information management practices did not ensure that employees had access to accurate data, thus some of the employees participating in benchmarking may have based their answers on perceptions and not on facts.

In spite of the low incidence, this barrier may be fairly important in diagnostic benchmarking because the process involves the completion of a questionnaire, usually by a cross functional team from various levels of the structure. In these conditions, if the elements who complete the questionnaire are receiving inaccurate data, this will lead to inaccurate answers in the questionnaire.

Diagnostic benchmarking already has a built-in procedure to minimize the chances of incorrect data affecting the overall results. This procedure, designated by consensus meeting, involves the discussion and reflection on individual scores, usually facilitated by a benchmarking expert/consultant. In the case of BEST, several data inaccuracies were detected, verified and corrected in this discussion.

Incorrect perception of data can influence the questionnaire results and, therefore, the initial benchmarking results. Nevertheless, the benchmarking methodology is designed to prevent this from happening: 1) team consensus over the questionnaire, 2) facilitator review session with the team. Consequently, C.b - Data accuracy was not a critical barrier in the present case, and requires validation in further studies.

5.3. Synthesis

In this chapter, we analyzed the data collected in accordance with the case study protocol, identifying barriers to internal benchmarking. We compared the list of barriers found in the literature with the empirical results and identified the barriers from the literature for which there was enough research evidence supporting its presence in the case under study, the barriers from the literature for which there was no research evidence and the barriers found in the case study for which there was no support in the literature reviewed. In the latter case, we developed a working definition based on empirical data.

We stressed and explained the differences between the barriers found in the literature and the empirical results.

We believe that we managed to develop a comprehensive list of barriers to internal benchmarking, based on the empirical data. We managed to perform a comparative analysis between the list built from empirical data and the list from the reviewed literature, pointing the differences in-between. Finally, we obtained a refined list of barriers to the implementation of benchmarking initiatives, based upon the one built from the literature review and enriched with the empirical data. As such, a number of eight new barriers and corresponding definitions were added and a number of three existing barriers were questioned.

The study was not satisfactory in terms of identifying strategies to cope with barriers to the implementation of the internal benchmarking initiative. Future research should draw on the hierarchical list of barriers that we managed to develop to identify the strategies to cope with these barriers, eventually drawing on other bodies of literature besides change management and project management which might have not been the most appropriate for this purpose.

6. Conclusions

Comparing and learning with the best is at the core of benchmarking, a process of measuring products, services, performance and practices, aiming to achieve superior performance and improve competitiveness. Pioneered by Xerox, benchmarking is a strategic management tool developed by practitioners, which has not received yet enough attention from the academic community. This is reflected in the weak theoretical and inconsistent approaches to benchmarking initiatives and lack of a conceptual framework to face particular difficulties that may appear whilst carrying out such initiatives.

For instance, during the implementation of benchmarking, it is common to come across barriers which slow down or even compromise the benchmarking initiative. The theoretical framework of benchmarking is not yet sufficiently developed so that to point specific barriers more likely to appear in certain types of benchmarking or to suggest practitioners appropriate ways to overcome them. It is therefore important to identify, analyze, explain and discuss barriers to benchmarking.

Along our research, we aimed at answering two research questions: 1) *What barriers arise during an internal benchmarking study?* 2) *How may a company cope with these barriers?*

Accordingly, our study was focused on an exploratory quest into the barriers that may emerge in an internal/diagnostic benchmarking study and associated strategies.

In the second chapter, we clarified the benchmarking concept and developed a working definition; we identified the types of benchmarking and the two different approaches for its implementation (i.e. Typical/traditionalists' perspective and Diagnostic/modernists' perspective).

In the third chapter, we reviewed the literature on benchmarking looking for barriers and associated strategies. Our objective was to create a categorized list of barriers that could serve as a base for the empirical research. As the theoretical framework of benchmarking was insufficiently developed, we based the creation of this list of barriers onto two additional/complementary disciplinary areas: change management and project management. The choice of these areas was guided by the intrinsic nature of the benchmarking process, which necessarily involves organizational change and needs to be managed as a project, in order to ensure the achievement of the objectives within deadlines/budget.

We managed to develop a comprehensive list of potential barriers to the implementation of benchmarking initiatives based on the evidence provided by the literature. This list was organized according to three main dimensions: organizational barriers (people, culture and context), benchmarking project management barriers (planning & implementation, leadership and business pressures) and benchmarking data barriers (difficulty to access/compare data).

We believe that this result is *per si* an important contribution to the benchmarking field of study, as no such list existed before and a better insight into the nature of barriers that may affect the implementation of a benchmarking initiative was needed.

In the fourth chapter, starting from the list of barriers developed from the literature, we performed a single-case study research, aimed at identifying barriers to the implementation of an internal/diagnostic benchmarking initiative. After developing a case-study protocol to guide our empirical research, we collected data, looking to identify barriers to benchmarking and associated strategies. We treated and analyzed data and the results pointed out slight differences compared to the initial list of barriers. This was to be expected, for two main reasons. First, there were no solid academic reviews that focused on the topic of barriers, so this topic was not properly addressed in the benchmarking literature. Second, in the little available literature, the internal benchmarking context may not have been addressed with enough detail.

So, we validated 13 barriers from the original list and discovered 8 new barriers. The result was a new list of barriers specific to internal/diagnostic benchmarking, indicating the incidence of each barrier in that specific case. This new list is organized according to the same main dimensions, and it presents the same child barriers in the three parent categories. The differences reside on the lowest level of abstraction, e.g. the child barrier *People* derived from the literature only pointed to *Resistance and unwillingness to change*, whilst the empirical study validated this barrier and added a new one: *Low education and abstraction capabilities*.

We also managed to identify the incidence of each barrier obtained from empirical data. Aspects like: *Low education and abstraction capabilities*, *Poor project management practices*, *Poor senior management support*, *Poor project coordination*, *Resource constraints* and *Business pressures* were relevant barriers, indicated by various informants with several occurrences.

Knowing the most relevant barriers is essential, as it points critical areas for improvement for practitioners that implement benchmarking. So, a practitioner in the specific case we

analyzed may realize that, in order to ensure a more efficient implementation process, would need to invest in training, development of project management practices, closer communication and higher involvement of senior management, and manage resource constraints/deal with business pressures.

We believe that the empirical research was important for two reasons. First, it allowed the validation of the main parent-child hierarchical list. We may assume that structuring barriers according to: organizational barriers (people, culture and context), benchmarking project management barriers (planning & implementation, leadership and business pressures) and benchmarking data barriers (difficulty to access/compare data) is a good approach to identify and validate barriers to benchmarking. Second, it allowed getting a better insight over the specific barriers that may appear during the implementation of an internal/diagnostic benchmarking, pointing the incidence of each barrier.

This is an important contribution to the benchmarking field of study as it provides interesting insights on what may be the barriers more likely to appear in an internal/diagnostic benchmarking study.

Contributions for management/practitioners

This study contributes to the benchmarking management field by integrating theory and empirical data to develop a categorized list of barriers to the implementation of an internal/diagnostic benchmarking process. This provides a better insight over the barriers that may emerge during the implementation of similar benchmarking initiatives and eases up the process of devising strategies to overcome the identified barriers. This is important because few studies to date have focused on these issues and benchmarking practitioners do not have enough knowledge to anticipate and overcome benchmarking-related problems.

Limitations

First, the categorized list of barriers developed in the third chapter was built based on the information collected, analysed, rearranged and synthesized, derived form a large number of benchmarking studies and does not provide detailed information regarding the type of benchmarking in which each barrier is more likely to appear nor on their relevance/impact in a specific case.

Note, however, that as the very barriers to benchmarking were difficult to identify, the strategies to cope with them were not clear, i.e. they focused in solving some aspects of a given barrier instead of being a real solution to overcome it. We were not able, thus, to

identify substantial/consistent strategies to cope with identified barriers to benchmarking. This might have been due to a limitation of our approach: the literature reviewed to identify barriers may not have been the most appropriate to find strategies to overcome them.

Second, we are clearly aware that the exploratory research we performed is limited in terms of generability, as it is based on a single-case research. It is also limited, for the same reason, in terms of the risk of misjudging a single event and of exaggerating available data. However, some of the new barriers that emerged in the case study may enrich the list of barriers to benchmarking derived from the literature and be object of further validation in subsequent studies. Also, the barriers consistent with existing literature have stronger validity (theory triangulation).

Third and last, we were not able to identify substantial/consistent strategies to cope with identified barriers to the implementation of the specific benchmarking initiative that was object of our study. In spite of the informants having been questioned about the strategies to overcome barriers, we obtained no relevant results.

It might have been that, as the support from the literature was poor, the case study protocol did not contemplate enough data to ask the right questions or to focus on the right issues. Also, the case study we looked into had just finished the first cycle of benchmarking and it might have been too early to identify strategies as the company was ongoing a process of devising them and there was no tangible way to evaluate whether the current approaches were being successful. Probably the case study we focused on was appropriate to identify barriers, yet in this stage of development was not ready to provide reliable information on the associated strategies.

Future research directions

We identified two main research directions we believe to be interesting to follow.

The first one is the development of a hierarchical list of barriers to the implementation of benchmarking both from a global perspective (i.e. barriers that may appear during the implementation of a benchmarking initiative) and from a more detailed perspective, specific for each type of benchmarking (e.g. barriers that may appear during the implementation of a strategic benchmarking initiative). This list should indicate incidence of any barrier in the implementation of benchmarking and point influences between the barriers/categories included in the list. In this thesis we have started to contribute to a better understanding of barriers to an internal benchmarking initiative.

The second one is devising specific strategies to cope with identified barriers using a similar approach to the one used in the development of the hierarchical list of barriers (i.e. global perspective, specific to each type of benchmarking), indicating their impact on the success of the implementation of benchmarking initiatives.

7. References

Alstete, J. (2000). Association-sponsored benchmarking programs. *Benchmarking: An International Journal, 7*(3), 200-205.

Ålstrom, P., Blackmon, K., & Voss, A. C. (1998). Diagnostic Benchmarking and Manufacturing Improvement. In P. Coughlan, T. Dromgoole & J. Peppard (Eds.), *Operations Management - Future Issues and Competitive Responses*. Dublin: University of Dublin.

Auluck, R. (2002). Benchmarking: A Tool for Facilitating Organizational Learning. *Public administration and Development*(22), 109-122.

Barber, E. (2004). Benchmarking the management of projects: a review of current thinking. *International Journal of Project Management*(22), 301-307.

Bhutta, K. S., & Huq, F. (1999). Benchmarking - best practices: an integrated approach. *Benchmarking: An International Journal, 6*(3), 254-268.

Bogan, C., & English, M. J. (1994). *Benchmarking for Best Practices: Winning through innovative adaptation* (1st ed.). New York: McGraw-Hill.

BRINTONS. (2003). *More about BEST: Brintons Excellence thourgh Structure and Teamwork*.Unpublished manuscript.

Camp, R. (1989). *Benchmarking: The Search for Industry Best Practices that Lead to Superior Performance* (1st ed.). Wisconsin: ASQC Quality Press.

Camp, R. (1997). *Benchmarking dos processos de negócios: descobrindo e implementando as melhores práticas*. Rio de Janeiro: Qualitymark.

Carpinetti, L. C. R., & Melo, A. M. (2002). What to benchmark? A systematic approach and cases. *Benchmarking: An International Journal, 9*(3), 176-209.

Chen, H. (2002). Benchmarking and quality improvement: a quality benchmarking deployment approach. *International Journal of Quality & Reliability Management, 19*(6), 757-773.

Dattakumar, R., & Jagadeesh, R. (2003). A review of literature on benchmarking. *Benchmarking: An International Journal, 10*(3), 176-209.

Delbridge, R., Lowe, J., & Oliver, N. (1995). The process of benchmarking: A study from the automotive industry. *International Journal of Operations & Production Management, 15*(4), 50-62.

Dey, I. (1993). *Qualitative Data Analysis: A User-Friendly Guide for Social Scientists*. London: Routledge.

Elmuti, D., & Kathawala, Y. (1997). An overview of benchmarking process: a tool for continuous improvement and competitive advantage. *Benchmarking: An International Journal, 4*(4), 229-243.

Fong, S. W., Cheng, E. W. L., & Ho, D. C. K. (1998). Benchmarking: a general reading for management practitioners. *Management Decision, 36*(6), 407-418.

Freytag, P. V., & Hollensen, S. (2001). The process of benchmarking, benchlearning and benchaction. *The TQM Magazine, 13*(1), 25-33.

HARVARD. (1991). *Management of Change*. Boston: Harvard Business School.

Hinton, M., Francis, G., & Holloway, J. (2000). Best practice benchmarking in the UK. *Benchmarking: An International Journal, 7*(1), 52-61.

Jarrar, Y. F., & Zairi, M. (2000). Internal transfer of best practice for performance excellence: a global survey. *Benchmarking: An International Journal, 7*(4), 239-246.

Jick, T. D. (1993). *Managing change: cases and concepts*. Burr Ridge (IL): Irwin.

Kyrö, P. (2003). Revising the concept and forms of benchmarking. *Benchmarking: An International Journal, 10*(3), 210-225.

Longbottom, D. (2000). Benchmarking in the UK: an empirical study of practitioners and academics. *Benchmarking: An International Journal, 7*(2), 98-117.

Macadam, C. (1996). Addressing barriers of managing change. *Management Development Review, 9*(3), 38-40.

Mann, R., & Welch, S. (2001). The Development of a Benchmarking and Performance Improvement Resource. *Benchmarking: An International Journal, 8*(5).

Meredith, J. R., & Mantel, S. J. (2000). *Project Management: a managerial approach* (4th ed.). New York: Wiley.

OXFORD. (1999). *The Oxford American Dictionary of Current English*. Retrieved 1st of November, 2004, from http://www.oxfordreference.com/views/ENTRY.html?subview=Main&entry=t21.e2529

Pilcher, T. (1999). Company benchmarking as a tool to aid competitiveness. *The TQM Magazine, 11*(1), 49-53.

PROBE. (2005). *Learning PROBE & Micro-Business Review*. Retrieved 29th of March, 2005, from http://www.lsda.org.uk/files/lsda/solutions/targets/LearningPROBE.pdf

PSBS. (2004). *Types of Benchmarking*. Retrieved 20th of October, 2004, from http://www.benchmarking.gov.uk/about_bench/types.asp

Pulat, B. M. (1994). Process Improvements through Benchmarking. *The TQM Magazine, 6*(2), 37-40.

Roufaiel, N. S., & Meissner, M. (1995). Self-managing teams: a pipeline to quality and technology management. *Benchmarking for Quality Management & Technology, 2*(1), 21-37.

Simpson, J. A., & Weiner, E. S. S. (1991). *The Oxford English Dictionary* (2nd ed. Vol. 2). Oxford: Clarendon Press.

Spendolini, M. (1994). *Benchmarking*. São Paulo: Makron Books.

STRATEGIC_DIRECTION. *The Benchmarking Portfolio*. Zurich: Strategic Direction Publishers.

Tutcher, G. (1994). How successful companies improve through internal benchmarking. *Managing Service Quality, 4*(2), 44-46.

Voss, A. C., Ålstrom, P., & Blackmon, K. (1997). Benchmarking and operational performance: some empirical results. *International Journal of Operations & Production Management, 17*(10), 1046-1058.

Voss, A. C., Tsikritksis, N., & Frohlinch, M. (2002). Case research: case research in operations management. *International Journal of Operations & Production Management, 22*(2), 195-219.

Whitten, J., Bentley, L., & Dittman, K. (2004). *Systems analysis and design methods*. Boston: McGraw Hill.

Yasin, M. (2002). The theory and practice of benchmarking: then and now. *Benchmarking: An International Journal, 9*(3), 217-243.

Yin, R. K. (1994). *Case study research: design and methods* (2nd ed.). Thousand Oaks: Sage.

Zairi, M. (1994). Benchmarking: The best tool for measuring competitiveness. *Benchmarking for Quality Management & Technology, 1*(1), 11-24.

Zairi, M. (1998). Benchmarking at Shorts. *Benchmarking for Quality Management & Technology, 5*(1), 13-20.

Zairi, M., & Whymark, J. (2000). The transfer of best practices: how to build a culture of benchmarking and continuous learning - part 1. *Benchmarking: An International Journal, 7*(1), 62-78.

Zairi, M., & Youssef, M. A. (1996). A review of key publication on benchmarking: part II. *Benchmarking for Quality Management & Technology, 3*(1), 45-49.

8. ANNEXES

Annex A – Barriers derived from the benchmarking literature

A. ORGANIZATIONAL BARRIERS

A.1. PEOPLE				
Barrier evidence label	**Evidence**	**Reference**	**Suggestion to overcome barrier**	**Reference**
Employee resistance	One obstacle for Ford was resistance on the part of some staffers. With new changes, there will always be some employees reluctant to get involved and cooperate with new policies. Staff resistance had been problematic at various stages from inception to acting on the results of benchmarking, indicated by comments such as: problem of how to involve all the workforce right down to individual operators; increased pressure to reduce costs - benchmarking is used as a pressure device.	Elmuti and Kathawala, (1997, p. 2377) Hinton et al. (2000, p. 58)	-	-
Fear of exclusion / redundancy	Benchmarking will shake people if they think that benchmarking is a device to get rid of them.	Fong at al. (1998, p 416)	Encourage feedback in an ongoing communication process to minimize misinterpretation.	Fong at al. (1998, p 416)

A.2. CULTURE				
Barrier evidence label	**Evidence**	**Reference**	**Suggestion to overcome barrier**	**Reference**
Lack of training and development	Training and development become the critical means for creating readiness and flexibility for change across all organizational levels.	Freytag and Hollensen (2001, p. 31)	-	-

A.2. CULTURE				
Barrier evidence label	**Evidence**	**Reference**	**Suggestion to overcome barrier**	**Reference**
Absence of learning practices (not a learning organization)	Companies which already are learning companies (the ones that have a significant number of learning practices in place) take all opportunities they can to learn more, and therefore, use the results of diagnostic benchmarking to take action.	Ålstrom et al. (1998, p. 10)	Develop organization's learning practices, i.e. systematic problem solving, experimentation, learning from past experience, learning from others, and transferring knowledge throughout the organization.	Garvin (1993, p.80, cited by Ålstrom et al., 1998, p. 10)
Employees not used to seek and share knowledge	A culture which values personal expertise and knowledge creation over sharing, where employees and managers are not accustomed to seek and share knowledge, does not smooth the process of transferring best practices (integral part of benchmarking).	Jarrar and Zairi (2000, p. 241)	-	-
Fear of exposing weaknesses	Some companies do not look to benchmarking because it exposes their weaknesses.	Elmuti and Kathawala, (1997, p.238)	-	-
Not invented here syndrome	Some companies may believe tactics not invented by themselves to be inferior. Some companies think a tactic not invented by them may be inferior […] it exposes their weaknesses.	Freytag and Hollesen (2001, p. 32) Bhutta and Huq (1999, p. 266)	-	-
"Silo thinking"	Organization structures that promote "silo thinking" find barriers in the transfer of best practices (integral part of benchmarking).	Jarrar and Zairi (2000, p. 241)	-	-

A.2. CULTURE				
Barrier evidence label	**Evidence**	**Reference**	**Suggestion to overcome barrier**	**Reference**
Complacency	Complacency is one reason why companies do not use the results of diagnostic benchmarking. Complacency is defined here as “a sense of not needing to improve”. One source of complacency observed by Ålstrom et al. was the notion the company already knew what to do. There was an action plan in place and the diagnostic benchmarking exercise was only used to validate and reinforce this action plan. The exercise was not seen as an opportunity to learn.	Ålstrom et al. (1998, p. 10, 12)	-	-
Routine	The toughest part of benchmarking is to get people out of their routine way of working and get them to think about the underlying process.	Biesada (1991, cited in Fong et al., 1998, p.416)	-	-
Little cross-functional communication	Benchmarking is unlikely to succeed in an organization where there is little cross-functional communication. Barriers between departments, and rivalry and suspicion will all work against the benchmarking process because employees will be reluctant to share information about what they do. There will be a fear of retribution if a mistake is admitted or if the department does not appear to be the best.	Tutcher (1994, p. 45)	Matrix organization structures facilitate openness and communication. These organization structures are characterized by flexibility and capacity to shift people from one job to another, within groups and also from group to group, which help in facilitating communication among the group members.	Roufaiel and Meissner (1995)

A.3. ORGANIZATIONAL CONTEXT				
Barrier evidence label	**Evidence**	**Reference**	**Suggestion to overcome barrier**	**Reference**
Lack of a comprehensive quality programme	Benchmarking will not improve performance unless a company already has a comprehensive quality programme.	Voss et al, (1997, p. 1054)	-	-

B. BENCHMARKING PROJECT MANAGEMENT BARRIERS

B.1. PROJECT PLANNING AND IMPLEMENTATION				
Barrier evidence label	**Evidence**	**Reference**	**Suggestion to overcome barrier**	**Reference**
Poor project team's benchmarking training	Benchmarking training is the tool to enable a team's success. Without training in the process, tools, techniques, and philosophy of best practices, benchmarking teams are severely handicapped.	Bogan and English (1994, p. 73-5)	Successful benchmarking training shares the following common characteristics: 1) familiarize the team with a standard benchmarking process to be used throughout the organization; 2) familiarize the team with basic tools by which to analyse, understand, and improve work processes; 3) prepare the team in performance measurement; 4) provide the team with requisite technical skills, techniques, and tools to implement the benchmarking process; 5) prepare teams members to be effective problem solvers and solution creators;	Bogan and English (1994, p. 73-5)

B.1. PROJECT PLANNING AND IMPLEMENTATION				
Barrier evidence label	**Evidence**	**Reference**	**Suggestion to overcome barrier**	**Reference**
			6) present the benchmarking process in the context of existing quality improvement initiatives; 7) convey the philosophy of best practices as a catalyst for performance improvement	
Poor understanding of organization's products, services and processes	Benchmarking requires a detailed understanding of the organization's products and services, including how they link in to the rest of the organization. It is not feasible to look for best practice if you do not really know the definition of that practice.	Tutcher (1994, p. 45)	TQM programs help building the understanding of organization's products, services and processes through communication and training. Process analysis and flowcharting are useful techniques. A glance at the organizations which are seriously using benchmarking will reveal that they are also those organizations that are several years into a total quality process and have managed to create the right environment to allow benchmarking to succeed.	NA Tutcher (1994, p. 45)
Poor planning	Experience and research demonstrate that poor planning is a primary cause of benchmarking failure. In a survey of 88 companies conducted by the American Productivity and Quality Center's International Benchmarking Clearinghouse, poor planning was the most frequently cited reason for unsuccessful benchmarking efforts.	Bogan and English (1994, p. 110)	-	-

B.1. PROJECT PLANNING AND IMPLEMENTATION				
Barrier evidence label	**Evidence**	**Reference**	**Suggestion to overcome barrier**	**Reference**
Industrial tourism	Instead of investing the time and effort, organizations will simply visit the company and see what can be learned. Benchmarking performed this way – termed Industrial tourism – brings little benefits.	Elmuti and Kathawala, (1997, p. 237)	-	-
Too broad benchmarking topic	A common pitfall is for teams to set out on projects that are far too large or poorly articulated to allow them to succeed. This barrier/pitfall was identified to have caused the failure of a benchmarking project undertaken in 1990 by Procter and Gamble.	Bogan and English (1994, p. 67-8)	Successful benchmarking projects usually start with well-focus project missions that target manageable topic areas.	Bogan and English (1994, p. 68)

B.2. PROJECT LEADERSHIP				
Barrier evidence label	**Evidence**	**Reference**	**Suggestion to overcome barrier**	**Reference**
Poor senior management support / leadership	Senior management support is a prerequisite of any benchmarking project that examines a core business process or undertakes major change. Senior management support constitutes more than just cheerleading. In the American Productivity and Quality Center's 1992 survey of 87 companies active in benchmarking, 61% of respondents stated that "no top-management support" was a "great or very great" factor influencing unsuccessful benchmarking efforts.	Bogan and English (1994, p. 69-72) Bogan and English (1994, p. 156)	Senior management support requires leadership actions and behaviour that signal the importance of the project to the organization. Communication through the leadership's actions is certainly the most effective means to champion a cause. Particularly helpful are the following types of senior management's leadership commitments: 1) to visibly promote benchmarking	Bogan and English (1994, p. 69-72)

B.2. PROJECT LEADERSHIP				
Barrier evidence label	**Evidence**	**Reference**	**Suggestion to overcome barrier**	**Reference**
	Senior executives play a leading role in determining the success of benchmarking projects. Senior executive influence is often disproportionately larger than the actual time and direct involvement they may dedicate to any given project.		within the organization; 2) to articulate and reinforce the benefits of benchmarking for best practices; 3) to translate general support for benchmarking into clear requirements for all managers; 4) to ensure that the organizational culture supports and encourages a "we-can-learn-from-anyone" attitude; 5) to empower employees who oversee processes and act as the owners of those performance systems to adapt best practices.	
Lack of involvement	If employees are not involved in the benchmarking process, this could cause some employees to resist necessary changes.	Freytag and Hollesen (2001, p. 32)	Employees need information in order to get involved.	Freytag and Hollesen (2001, p. 32)
Lack of commitment	There is little point in conducting a benchmarking exercise if there is no commitment in the organization to do it properly. There needs to be a willingness to follow all the stages including the implementation of subsequent improvements.	Tutcher (1994, p. 45)	-	-

B.3. BUSINESS PRESSURES (RESSOURCE ALLOCATION)				
Barrier evidence label	**Evidence**	**Reference**	**Suggestion to overcome barrier**	**Reference**
Resource constraints: time, finance and expertise	There was a widespread acceptance that benchmarking is quite time-consuming for our staff and quite expensive. "Usually there are travel expenses and indirect costs – including employee time devoted to team meetings and travel."	Hinton et al. (2000, p. 58) Bhutta and Huq (1999, p. 266)	Cost of external benchmarking information is falling. With careful planning benchmarking cost can be kept to a minimum. Cost can be further controlled by defining a narrow but critical area to explore. To minimize the costly meeting and travel time, the company must work efficiently and communicate effectively. The company should know what their own specific problems are before employees go to visit other companies. The trip should be clearly defined as to what one wants to accomplish and what to look for in the trip, and one must understand what the other company wants from you and what you are willing to share with them.	Bhutta and Huq (1999, p. 266) Elmuti and Kathawala, (1997, p. 238)
Resource constraint: time	Lack of time is often a barrier in the transfer of best practices (integral part of benchmarking).	Jarrar and Zairi (2000, p. 241)	-	-
Business pressures (benchmarking becomes low priority)	Ålstrom et al. (1998, p. 11-2) found that some companies fail to use the results of diagnostic benchmarking proactively, taking action, due to business pressures. These pressures often come from other areas of the business and have the ability to make improving manufacturing a low priority.	Ålstrom et al. (1998, p. 11-2)	-	-

C. BENCHMARKING DATA BARRIERS

Barrier evidence label	Evidence	Reference	Suggestion to overcome barrier	Reference
Confidentiality issues not clarified	Confidentiality problems such as: commercial sensitivity; openness of some companies in taking part; difficulty in making detailed in-depth comparisons due to commercial sensitivity, were cited, thought relatively infrequently. Benchmarking gives too much information to one's competitors.	Hinton et al. (2000, p. 58)	Address the confidentiality issue formally and at an early stage. Use code of conduct. "Employees providing information should [...] not give away the heart and soul of the company."	Hinton et al. (2000, p. 58) Bhutta and Huq (1999, p. 267)
Difficult access to information	Managers need to facilitate access to information and remove any barriers to the process. This is particularly important for internal benchmarking, since the sources of information will come from within the organization itself.	Tutcher (1994, p. 45)	-	-
Uncooperative partners	Difficult to obtain useful information about competitors. Gathering competitive intelligence requires considerable time, effort, and money. Further, there can be ethical and legal questions about some intelligence activities, such as paying a competitor's employees for information, recording conversations, etc.	Freytag and Hollesen (2001, p. 32)	Benchmarking partners need to establish a win-win relationship. Ethical and legal issues need to be addresses formally and at an early stage.	NA

Barrier evidence label	Evidence	Reference	Suggestion to overcome barrier	Reference
Existence of incomparable data	Another limitation of benchmarking deals with not understanding where the data came from, which can cause errors in making comparisons. The author reports an unsuccessful benchmarking experience by Intel Corporation where they had problems of clarity on where the data originated. To ensure they were doing “apples-to-apples” comparisons they had to spend a lot of time reconciling the data, which was considered incredibly unproductive.	Elmuti and Kathawala, (1997, p. 236-7)	“Benchmarking should be used as a guide, not for statistical precision”. Use robust data collection methods to ensure accuracy and clarity.	Muschter (1997, cited in Elmuti and Kathawala, 1997, p. 236)

Annex B – Barriers derived from the change management literature

A. ORGANIZATIONAL BARRIERS

A.1. PEOPLE				
Barrier evidence label	**Evidence**	**Reference**	**Suggestion to overcome barrier**	**Reference**
Unwillingness to change	Many people are resisting to change because they might have been in their jobs for years and do not want the challenge of learning new skills or they may feel stressed when required to move out of established comfort zones.	Macadam (1996, p.39)	Human Resources and management can help people understand that leaving a comfort zone can be a productive move if, as individuals, they want to expand their knowledge and reach new goals. To achieve this, organizations should encourage individuals to: - welcome change, - seek new opportunities, - accept the challenge, - enjoy learning new skills, - develop through new experiences, and - think and act positively. By constructively planning time in relation to new tasks and goals (deriving from the change), an individual becomes better equipped to enjoy the changes.	Macadam (1996, p.39)

B. BENCHMARKING PROJECT MANAGEMENT BARRIERS

B.1. PROJECT PLANNING AND IMPLEMENTATION				
Barrier evidence label	**Evidence**	**Reference**	**Suggestion to overcome barrier**	**Reference**
Inadequate training and instruction given to lower-level employees	Sixty two percent (62%) of respondents to a change implementation survey reported this problem.	Jick (1993, p.194)	-	-
Capabilities (skills and abilities) of employees involved in the implementation are not sufficient	Sixty three percent (63%) of respondents to a change implementation survey reported this problem.	Jick (1993, p.194)	-	-
Implementation takes more time than originally allocated	Seventy six percent (76%) of respondents to a change implementation survey reported this problem.	Jick (1993, p.194)	-	-
Failing to define expectations and goals clearly		Jick (1993, p.194)	-	-
Major problems surface during implementation that have not been identified beforehand	Seventy four percent (74%) of respondents to a change implementation survey reported this problem.	Jick (1993, p.194)	-	-

B.2. PROJECT LEADERSHIP				
Barrier evidence label	**Evidence**	**Reference**	**Suggestion to overcome barrier**	**Reference**
Lack of support from top management	Change implementers often feel that they fail to receive the support from above to move forward.	Jick (1993, p.193)	-	-
Change implementer's insufficient authority	Change implementers often feel they have insufficient authority to make change happen entirely on their own.	Jick (1993, p.193)	-	-
Neglecting to involve all those who will be affected by the change	Full involvement, communication, and disclosure can be potent tools for overcoming resistance and giving employees a personal stake in the outcome of a transformation.	Jick (1993, p.194, 198)	Change leaders should communicate openly and seek out the involvement and trust of people throughout the organization. By listening and responding to concerns, resistance, and feedback from all levels, implementers gain a broader understanding of what the change means to different parts of the organization and how it will affect them.	Jick (1993, p.194, 200) Jick (1993, p.194, 201)
Failing to win adequate support for change	To succeed, a change effort must have broad-based support throughout an organization. This support should include not only the managers or change implementers but also the recipients, whose acceptance of any change is necessary for its success.	Jick (1993, p.194, 198)	Begin winning support for change by actively seeking the backing of the informal leaders of the organization – beginning with those who are most receptive. Determine precisely whose sponsorship is critical to the change program's success. For this purpose a "commitment plan" may be developed, encompassing the following elements: - identify target individuals or groups	Jick (1993, p.198)

B.2. PROJECT LEADERSHIP				
Barrier evidence label	**Evidence**	**Reference**	**Suggestion to overcome barrier**	**Reference**
			whose commitment is needed. - define the critical mass needed to ensure the effectiveness of the change. - develop a plan for getting the commitment of the critical mass. - create a monitoring system to assess the progress.	
Coordination of implementation activities not effective enough	Sixty six percent (66%) of respondents to a change implementation survey reported this problem.	Jick (1993, p.194)	-	-

B.3. BUSINESS PRESSURES (RESSOURCE ALLOCATION)				
Barrier evidence label	**Evidence**	**Reference**	**Suggestion to overcome barrier**	**Reference**
Competing activities and crisis distract attention from implementation	Sixty four (64%) of respondents to a change implementation survey reported this problem.	Jick (1993, p.194)	-	-
Adverse impact of uncontrollable factors in the external environment (e.g., competitive, economic)	Sixty percent (60%) of respondents to a change implementation survey reported this problem.	Jick (1993, p.194)	-	-

Annex C – Barriers derived from the project management literature

B. BENCHMARKING PROJECT MANAGEMENT BARRIERS

B.1. PROJECT PLANNING AND IMPLEMENTATION				
Barrier evidence label	**Evidence**	**Reference**	**Suggestion to overcome barrier**	**Reference**
Poor project planning	There is a great deal of research supporting the view that careful planning is solidly associated with project success.	(Meredith and Mantel, 2000, p.182)	-	-
Last minute schedule and technical changes		(Meredith and Mantel, 2000, p.99)	The way to deal with last-minute schedule and technical changes is "the best you can". Beyond knowing that such changes will occur and will be disruptive to the project, there is little the project manager can do except be prepared to "scramble" The project plan must include allowances for risk and for features that allow it to be adaptive, i.e., to be responsive to things that might disrupt it while it's being carried out.	(Meredith and Mantel, 2000, p.99) (Meredith and Mantel, 2000, p.183)

B.2. PROJECT LEADERSHIP				
Barrier evidence label	**Evidence**	**Reference**	**Suggestion to overcome barrier**	**Reference**
Lack of upper-management commitment	Failure to establish upper-management commitment to the project. Sometimes commitment changes during a project.	(Whitten et.al., 2004, p.143-4)	-	-

B.2. PROJECT LEADERSHIP				
Barrier evidence label	**Evidence**	**Reference**	**Suggestion to overcome barrier**	**Reference**
Taking shortcuts	Taking shortcuts in the (benchmarking) methodology. Project teams often take shortcuts for one of the following reasons: - the project gets behind schedule, and the team wants to catch up; - the project is over budget, and the team wants to make up costs by skipping steps; - the team is not trained or skilled in some of the methodology's activities and requirements, so it skips them.	(Whitten et.al., 2004, p.143-4)	-	-
Poor expectations management	Everyone in the organization has expectations of the (benchmarking) project. Over time, these expectations may change, leading to undesirable situations. Changes in a (benchmarking) project to match changing or growing expectations may adversely affect the project's schedule and budget.	(Whitten et.al., 2004, p.143-4)	-	-
Uncertainty surrounding what happens to the members of the project team when the project is completed		(Meredith and Mantel, 2000, p.99)	The key to solving such problems is communication. Open communication between the project manager and team members must be made first priority. This requires that emotions, feelings, worries, and anxieties are communicated, as well as factual messages.	(Meredith and Mantel, 2000, p.99-100)

B.3. BUSINESS PRESSURES (RESOURCE ALLOCATION)				
Barrier evidence label	**Evidence**	**Reference**	**Suggestion to overcome barrier**	**Reference**
Insufficient resources	This could be due to poor estimating or to other priorities, or it could be that the staff resources assigned to a project do not possess the necessary skills or experience.	(Whitten et.al., 2004, p.143-4)	-	-
Failure to adapt to business change	If the project's importance changes during the project, or if the management of the business reorganizes, projects should be reassessed for compatibility with those changes and their importance to the business.	(Whitten et.al., 2004, p.143-4)	Projects should be reassessed for compatibility with business changes.	(Whitten et.al., 2004, p.143-4)

Annex D – Combined list of barriers derived from the benchmarking, change management and project management literature

A. ORGANIZATIONAL BARRIERS

A.1. PEOPLE – BENCHMARKING LITERATURE				
Barrier evidence label	**Evidence**	**Reference**	**Suggestion to overcome barrier**	**Reference**
Employee resistance	One obstacle for Ford was resistance on the part of some staffers. With new changes, there will always be some employees reluctant to get involved and cooperate with new policies. Staff resistance had been problematic at various stages from inception to acting on the results of benchmarking, indicated by comments such as: problem of how to involve all the workforce right down to individual operators; increased pressure to reduce costs - benchmarking is used as a pressure device.	Elmuti and Kathawala, (1997, p. 2377) Hinton et al. (2000, p. 58)		
Fear of exclusion / redundancy	Benchmarking will shake people if they think that benchmarking is a device to get rid of them.	Fong at al. (1998, p 416)	Encourage feedback in an ongoing communication process to minimize misinterpretation.	Fong at al. (1998, p 416)

A.1. PEOPLE – CHANGE MANAGEMENT LITERATURE				
Barrier evidence label	**Evidence**	**Reference**	**Suggestion to overcome barrier**	**Reference**
Unwillingness to change	Many people are resisting to change because they might have been in their jobs for years and do not want the challenge of learning new skills or they may feel stressed when required	Macadam (1996, p.39)	Human Resources and management can help people understand that leaving a comfort zone can be a productive move if, as individuals, they want to	Macadam (1996, p.39)

A.1. PEOPLE – CHANGE MANAGEMENT LITERATURE				
Barrier evidence label	**Evidence**	**Reference**	**Suggestion to overcome barrier**	**Reference**
	to move out of established comfort zones.		expand their knowledge and reach new goals. To achieve this, organizations should encourage individuals to: - welcome change, - seek new opportunities, - accept the challenge, - enjoy learning new skills, - develop through new experiences, and - think and act positively. By constructively planning time in relation to new tasks and goals (deriving from the change), an individual becomes better equipped to enjoy the changes.	

A.2. CULTURE – BENCHMARKING LITERATURE				
Barrier evidence label	**Evidence**	**Reference**	**Suggestion to overcome barrier**	**Reference**
Lack of training and development	Training and development become the critical means for creating readiness and flexibility for change across all organizational levels.	Freytag and Hollensen (2001, p. 31)	-	-
Absence of learning practices (not a learning organization)	Companies which already are learning companies (the ones that have a significant number of learning practices in place) take all opportunities they can to learn more, and therefore, use the results of diagnostic benchmarking to take action.	Ålstrom et al. (1998, p. 10)	Develop organization's learning practices, i.e. systematic problem solving, experimentation, learning from past experience, learning from others, and transferring knowledge throughout the organization.	Garvin (1993, p.80, cited by Ålstrom et al., 1998, p. 10)

A.2. CULTURE – BENCHMARKING LITERATURE				
Barrier evidence label	**Evidence**	**Reference**	**Suggestion to overcome barrier**	**Reference**
Employees not used to seek and share knowledge	A culture which values personal expertise and knowledge creation over sharing, where employees and managers are not accustomed to seek and share knowledge, does not smooth the process of transferring best practices (integral part of benchmarking).	Jarrar and Zairi (2000, p. 241)	-	-
Fear of exposing weaknesses	Some companies do not look to benchmarking because it exposes their weaknesses.	Elmuti and Kathawala, (1997, p.238)	-	-
Not invented here syndrome	Some companies may believe tactics not invented by themselves to be inferior. Some companies think a tactic not invented by them may be inferior […] it exposes their weaknesses.	Freytag and Hollesen (2001, p. 32) Bhutta and Huq (1999, p. 266)	-	-
"Silo thinking"	Organization structures that promote "silo thinking" find barriers in the transfer of best practices (integral part of benchmarking).	Jarrar and Zairi (2000, p. 241)	-	-

A.2. CULTURE – BENCHMARKING LITERATURE				
Barrier evidence label	**Evidence**	**Reference**	**Suggestion to overcome barrier**	**Reference**
Complacency	Complacency is one reason why companies do not use the results of diagnostic benchmarking. Complacency is defined here as "a sense of not needing to improve". One source of complacency observed by Ålstrom et al. was the notion the company already knew what to do. There was an action plan in place and the diagnostic benchmarking exercise was only used to validate and reinforce this action plan. The exercise was not seen as an opportunity to learn.	Ålstrom et al. (1998, p. 10, 12)	-	-
Routine	The toughest part of benchmarking is to get people out of their routine way of working and get them to think about the underlying process.	Biesada (1991, cited in Fong et al., 1998, p.416)	-	-
Little cross-functional communication	Benchmarking is unlikely to succeed in an organization where there is little cross-functional communication. Barriers between departments, and rivalry and suspicion will all work against the benchmarking process because employees will be reluctant to share information about what they do. There will be a fear of retribution if a mistake is admitted or if the department does not appear to be the best.	Tutcher (1994, p. 45)	Matrix organization structures facilitate openness and communication. These organization structures are characterized by flexibility and capacity to shift people from one job to another, within groups and also from group to group, which help in facilitating communication among the group members.	Roufaiel and Meissner (1995)

A.3. ORGANIZATIONAL CONTEXT – BENCHMARKING LITERATURE				
Barrier evidence label	**Evidence**	**Reference**	**Suggestion to overcome barrier**	**Reference**
Lack of a comprehensive quality programme	Benchmarking will not improve performance unless a company already has a comprehensive quality programme.	Voss et al, (1997, p. 1054)	-	-

B. BENCHMARKING PROJECT MANAGEMENT BARRIERS

B.1. PROJECT PLANNING AND IMPLEMENTATION – BENCHMARKING LITERATURE				
Barrier evidence label	**Evidence**	**Reference**	**Suggestion to overcome barrier**	**Reference**
Poor project team's benchmarking training	Benchmarking training is the tool to enable a team's success. Without training in the process, tools, techniques, and philosophy of best practices, benchmarking teams are severely handicapped.	Bogan and English (1994, p. 73-5)	Successful benchmarking training shares the following common characteristics: 1) familiarize the team with a standard benchmarking process to be used throughout the organization; 2) familiarize the team with basic tools by which to analyse, understand, and improve work processes; 3) prepare the team in performance measurement; 4) provide the team with requisite technical skills, techniques, and tools to implement the benchmarking process; 5) prepare teams members to be effective problem solvers and solution creators;	Bogan and English (1994, p. 73-5)

B.1. PROJECT PLANNING AND IMPLEMENTATION – BENCHMARKING LITERATURE				
Barrier evidence label	**Evidence**	**Reference**	**Suggestion to overcome barrier**	**Reference**
			6) present the benchmarking process in the context of existing quality improvement initiatives; 7) convey the philosophy of best practices as a catalyst for performance improvement	
Poor understanding of organization's products, services and processes	Benchmarking requires a detailed understanding of the organization's products and services, including how they link in to the rest of the organization. It is not feasible to look for best practice if you do not really know the definition of that practice.	Tutcher (1994, p. 45)	TQM programs help building the understanding of organization's products, services and processes through communication and training. Process analysis and flowcharting are useful techniques. A glance at the organizations which are seriously using benchmarking will reveal that they are also those organizations that are several years into a total quality process and have managed to create the right environment to allow benchmarking to succeed.	NA Tutcher (1994, p. 45)
Poor planning	Experience and research demonstrate that poor planning is a primary cause of benchmarking failure. In a survey of 88 companies conducted by the American Productivity and Quality Center's International Benchmarking Clearinghouse, poor planning was the most frequently cited reason for unsuccessful benchmarking efforts.	Bogan and English (1994, p. 110)	-	-

B.1. PROJECT PLANNING AND IMPLEMENTATION – BENCHMARKING LITERATURE				
Barrier evidence label	**Evidence**	**Reference**	**Suggestion to overcome barrier**	**Reference**
Industrial tourism	Instead of investing the time and effort, organizations will simply visit the company and see what can be learned. Benchmarking performed this way – termed Industrial tourism – brings little benefits.	Elmuti and Kathawala, (1997, p. 237)	-	-
Too broad benchmarking topic	A common pitfall is for teams to set out on projects that are far too large or poorly articulated to allow them to succeed. This barrier/pitfall was identified to have caused the failure of a benchmarking project undertaken in 1990 by Procter and Gamble.	Bogan and English (1994, p. 67-8)	Successful benchmarking projects usually start with well-focus project missions that target manageable topic areas.	Bogan and English (1994, p. 68)

B.1. PROJECT PLANNING AND IMPLEMENTATION – CHANGE MANAGEMENT LITERATURE				
Barrier evidence label	**Evidence**	**Reference**	**Suggestion to overcome barrier**	**Reference**
Inadequate training and instruction given to lower-level employees	Sixty two percent (62%) of respondents to a change implementation survey reported this problem.	Jick (1993, p.194)	-	-
Capabilities (skills and abilities) of employees involved in the implementation are not sufficient	Sixty three percent (63%) of respondents to a change implementation survey reported this problem.	Jick (1993, p.194)	-	-

B.1. PROJECT PLANNING AND IMPLEMENTATION – CHANGE MANAGEMENT LITERATURE				
Barrier evidence label	**Evidence**	**Reference**	**Suggestion to overcome barrier**	**Reference**
Implementation takes more time than originally allocated	Seventy six percent (76%) of respondents to a change implementation survey reported this problem.	Jick (1993, p.194)	-	-
Failing to define expectations and goals clearly		Jick (1993, p.194)	-	-
Major problems surface during implementation that have not been identified beforehand	Seventy four percent (74%) of respondents to a change implementation survey reported this problem.	Jick (1993, p.194)	-	-

B.1. PROJECT PLANNING AND IMPLEMENTATION – PROJECT MANAGEMENT LITERATURE				
Barrier evidence label	**Evidence**	**Reference**	**Suggestion to overcome barrier**	**Reference**
Poor project planning	There is a great deal of research supporting the view that careful planning is solidly associated with project success.	(Meredith and Mantel, 2000, p.182)	-	-
Last minute schedule and technical changes		(Meredith and Mantel, 2000, p.99)	The way to deal with last-minute schedule and technical changes is “the best you can”. Beyond knowing that such changes will occur and will be disruptive to the project, there is little the project manager can do except be prepared to “scramble” The project plan must include	(Meredith and Mantel, 2000, p.99) (Meredith

B.1. PROJECT PLANNING AND IMPLEMENTATION – PROJECT MANAGEMENT LITERATURE				
Barrier evidence label	**Evidence**	**Reference**	**Suggestion to overcome barrier**	**Reference**
			allowances for risk and for features that allow it to be adaptive, i.e., to be responsive to things that might disrupt it while it's being carried out.	and Mantel, 2000, p.183)

B.2. PROJECT LEADERSHIP – BENCHMARKING LITERATURE				
Barrier evidence label	**Evidence**	**Reference**	**Suggestion to overcome barrier**	**Reference**
Poor senior management support / leadership	Senior management support is a prerequisite of any benchmarking project that examines a core business process or undertakes major change. Senior management support constitutes more than just cheerleading. In the American Productivity and Quality Center's 1992 survey of 87 companies active in benchmarking, 61% of respondents stated that "no top-management support" was a "great or very great" factor influencing unsuccessful benchmarking efforts. Senior executives play a leading role in determining the success of benchmarking projects. Senior executive influence is often disproportionately larger than the actual time and direct involvement they may dedicate to any given project.	Bogan and English (1994, p. 69-72) Bogan and English (1994, p. 156)	Senior management support requires leadership actions and behaviour that signal the importance of the project to the organization. Communication through the leadership's actions is certainly the most effective means to champion a cause. Particularly helpful are the following types of senior management's leadership commitments: 1) to visibly promote benchmarking within the organization; 2) to articulate and reinforce the benefits of benchmarking for best practices; 3) to translate general support for benchmarking into clear requirements for all managers; 4) to ensure that the organizational culture supports and encourages a "we-can-learn-from-anyone" attitude;	Bogan and English (1994, p. 69-72)

B.2. PROJECT LEADERSHIP – BENCHMARKING LITERATURE				
Barrier evidence label	**Evidence**	**Reference**	**Suggestion to overcome barrier**	**Reference**
			5) to empower employees who oversee processes and act as the owners of those performance systems to adapt best practices.	
Lack of involvement	If employees are not involved in the benchmarking process, this could cause some employees to resist necessary changes.	Freytag and Hollesen (2001, p. 32)	Employees need information in order to get involved.	Freytag and Hollesen (2001, p. 32)
Lack of commitment	There is little point in conducting a benchmarking exercise if there is no commitment in the organization to do it properly. There needs to be a willingness to follow all the stages including the implementation of subsequent improvements.	Tutcher (1994, p. 45)	-	-

B.2. PROJECT LEADERSHIP – CHANGE MANAGEMENT LITERATURE				
Barrier evidence label	**Evidence**	**Reference**	**Suggestion to overcome barrier**	**Reference**
Lack of support from top management	Change implementers often feel that they fail to receive the support from above to move forward.	Jick (1993, p.193)	-	-
Change implementer's insufficient authority	Change implementers often feel they have insufficient authority to make change happen entirely on their own.	Jick (1993, p.193)	-	-
Neglecting to involve all those who will be affected	Full involvement, communication, and disclosure can be potent tools for overcoming	Jick (1993, p.194, 198)	Change leaders should communicate openly and seek out the involvement and	Jick (1993, p.194, 200)

B.2. PROJECT LEADERSHIP – CHANGE MANAGEMENT LITERATURE				
Barrier evidence label	**Evidence**	**Reference**	**Suggestion to overcome barrier**	**Reference**
by the change	resistance and giving employees a personal stake in the outcome of a transformation.		trust of people throughout the organization. By listening and responding to concerns, resistance, and feedback from all levels, implementers gain a broader understanding of what the change means to different parts of the organization and how it will affect them.	Jick (1993, p.194, 201)
Failing to win adequate support for change	To succeed, a change effort must have broad-based support throughout an organization. This support should include not only the managers or change implementers but also the recipients, whose acceptance of any change is necessary for its success.	Jick (1993, p.194, 198)	Begin winning support for change by actively seeking the backing of the informal leaders of the organization – beginning with those who are most receptive. Determine precisely whose sponsorship is critical to the change program's success. For this purpose a "commitment plan" may be developed, encompassing the following elements: - identify target individuals or groups whose commitment is needed. - define the critical mass needed to ensure the effectiveness of the change. - develop a plan for getting the commitment of the critical mass. - create a monitoring system to assess the progress.	Jick (1993, p.198)
Coordination of implementation activities not effective enough	Sixty six percent (66%) of respondents to a change implementation survey reported this problem.	Jick (1993, p.194)	-	-

B.2. PROJECT LEADERSHIP – PROJECT MANAGEMENT LITERATURE				
Barrier evidence label	**Evidence**	**Reference**	**Suggestion to overcome barrier**	**Reference**
Lack of upper-management commitment	Failure to establish upper-management commitment to the project. Sometimes commitment changes during a project.	(Whitten et.al., 2004, p.143-4)	-	-
Taking shortcuts	Taking shortcuts in the (benchmarking) methodology. Project teams often take shortcuts for one of the following reasons: - the project gets behind schedule, and the team wants to catch up; - the project is over budget, and the team wants to make up costs by skipping steps; - the team is not trained or skilled in some of the methodology's activities and requirements, so it skips them.	(Whitten et.al., 2004, p.143-4)	-	-
Poor expectations management	Everyone in the organization has expectations of the (benchmarking) project. Over time, these expectations may change, leading to undesirable situations. Changes in a (benchmarking) project to match changing or growing expectations may adversely affect the project's schedule and budget.	(Whitten et.al., 2004, p.143-4)	-	-
Uncertainty surrounding what happens to the members of the project team when the project is completed		(Meredith and Mantel, 2000, p.99)	The key to solving such problems is communication. Open communication between the project manager and team members must be made first priority. This requires that emotions, feelings, worries, and anxieties are	(Meredith and Mantel, 2000, p.99-100)

B.2. PROJECT LEADERSHIP – PROJECT MANAGEMENT LITERATURE				
Barrier evidence label	**Evidence**	**Reference**	**Suggestion to overcome barrier**	**Reference**
			communicated, as well as factual messages.	

B.3. BUSINESS PRESSURES (RESSOURCE ALLOCATION) – BENCHMARKING LITERATURE				
Barrier evidence label	**Evidence**	**Reference**	**Suggestion to overcome barrier**	**Reference**
Resource constraints: time, finance and expertise	There was a widespread acceptance that benchmarking is quite time-consuming for our staff and quite expensive. "Usually there are travel expenses and indirect costs – including employee time devoted to team meetings and travel."	Hinton et al. (2000, p. 58) Bhutta and Huq (1999, p. 266)	Cost of external benchmarking information is falling. With careful planning benchmarking cost can be kept to a minimum. Cost can be further controlled by defining a narrow but critical area to explore. To minimize the costly meeting and travel time, the company must work efficiently and communicate effectively. The company should know what their own specific problems are before employees go to visit other companies. The trip should be clearly defined as to what one wants to accomplish and what to look for in the trip, and one must understand what the other company wants from you and what you are willing to share with them.	Bhutta and Huq (1999, p. 266) Elmuti and Kathawala, (1997, p. 238)
Resource constraint: time	Lack of time is often a barrier in the transfer of best practices (integral part of benchmarking).	Jarrar and Zairi (2000, p. 241)	-	-

B.3. BUSINESS PRESSURES (RESSOURCE ALLOCATION) – BENCHMARKING LITERATURE				
Barrier evidence label	**Evidence**	**Reference**	**Suggestion to overcome barrier**	**Reference**
Business pressures (benchmarking becomes low priority)	Ålstrom et al. (1998, p. 11-2) found that some companies fail to use the results of diagnostic benchmarking proactively, taking action, due to business pressures. These pressures often come from other areas of the business and have the ability to make improving manufacturing a low priority.	Ålstrom et al. (1998, p. 11-2)	-	-

B.3. BUSINESS PRESSURES (RESSOURCE ALLOCATION) – CHANGE MANAGEMENT LITERATURE				
Barrier evidence label	**Evidence**	**Reference**	**Suggestion to overcome barrier**	**Reference**
Competing activities and crisis distract attention from implementation	Sixty four (64%) of respondents to a change implementation survey reported this problem.	Jick (1993, p.194)	-	-
Adverse impact of uncontrollable factors in the external environment (e.g., competitive, economic)	Sixty percent (60%) of respondents to a change implementation survey reported this problem.	Jick (1993, p.194)	-	-

B.3. BUSINESS PRESSURES (RESOURCE ALLOCATION) – PROJECT MANAGEMENT LITERATURE				
Barrier evidence label	**Evidence**	**Reference**	**Suggestion to overcome barrier**	**Reference**
Insufficient resources	This could be due to poor estimating or to other priorities, or it could be that the staff resources assigned to a project do not possess the necessary skills or experience.	(Whitten et.al., 2004, p.143-4)	-	-
Failure to adapt to business change	If the project's importance changes during the project, or if the management of the business reorganizes, projects should be reassessed for compatibility with those changes and their importance to the business.	(Whitten et.al., 2004, p.143-4)	Projects should be reassessed for compatibility with business changes.	(Whitten et.al., 2004, p.143-4)

C. BENCHMARKING DATA BARRIERS

BENCHMARKING DATA BARRIERS – BENCHMARKING LITERATURE				
Barrier evidence label	**Evidence**	**Reference**	**Suggestion to overcome barrier**	**Reference**
Confidentiality issues not clarified	Confidentiality problems such as: commercial sensitivity; openness of some companies in taking part; difficulty in making detailed in-depth comparisons due to commercial sensitivity, were cited, thought relatively infrequently. Benchmarking gives too much information to one's competitors.	Hinton et al. (2000, p. 58)	Address the confidentiality issue formally and at an early stage. Use code of conduct. "Employees providing information should [...] not give away the heart and soul of the company."	Hinton et al. (2000, p. 58) Bhutta and Huq (1999, p. 267)

BENCHMARKING DATA BARRIERS – BENCHMARKING LITERATURE				
Barrier evidence label	**Evidence**	**Reference**	**Suggestion to overcome barrier**	**Reference**
Difficult access to information	Managers need to facilitate access to information and remove any barriers to the process. This is particularly important for internal benchmarking, since the sources of information will come from within the organization itself.	Tutcher (1994, p. 45)	-	-
Uncooperative partners	Difficult to obtain useful information about competitors. Gathering competitive intelligence requires considerable time, effort, and money. Further, there can be ethical and legal questions about some intelligence activities, such as paying a competitor's employees for information, recording conversations, etc.	Freytag and Hollesen (2001, p. 32)	Benchmarking partners need to establish a win-win relationship. Ethical and legal issues need to be addresses formally and at an early stage.	NA
Existence of incomparable data	Another limitation of benchmarking deals with not understanding where the data came from, which can cause errors in making comparisons. The author reports an unsuccessful benchmarking experience by Intel Corporation where they had problems of clarity on where the data originated. To ensure they were doing "apples-to-apples" comparisons they had to spend a lot of time reconciling the data, which was considered incredibly unproductive.	Elmuti and Kathawala, (1997, p. 236-7)	"Benchmarking should be used as a guide, not for statistical precision". Use robust data collection methods to ensure accuracy and clarity.	Muschter (1997, cited in Elmuti and Kathawala, 1997, p. 236)

Annex E – The case study protocol

Introduction

This protocol describes the field procedures to be followed in the case study. It is intended to guide the researcher in carrying out the case study.

The protocol can also be used to repeat the study in another plant, thus it contributes to the reliability of the research.

The protocol was developed following the guidelines of Sousa (2000), Voss *et al.* (2002, p.204-5), and Yin (1994).

Interview preparation

The individuals to be interviewed will be sent a letter with a general description of the study, and soliciting their participation. A few days later they will be contacted, either personally or by phone, to determine whether they are willing to participate.

Interviews will then be booked with each available person.

The interviews will be semi-structured. For each interview the researcher will prepare, in advance, an interview script drawn from the case study protocol questions. The interview script includes the specific areas to be explored, the questions to be asked, and particular data to be obtained.

The researcher will record the data in the interview script and/or in a notepad. The researcher's thoughts and comments after the interview will also be recorded on a notepad, for future reference.

The interview data will be reviewed and typed as soon as possible after the interview, and where appropriate, the write up will be reviewed by or checked with the interviewee.

On-site data collection

To support on-site data collection we've identified the relevant data to be collected together with possible questions to be asked and categorized these into areas. Then, we specified the field procedures to be used and identified the sources of information.

The researcher will collect data in the following major areas:

A. Plant and business context;

B. BEST benchmarking initiative; and

C. Barriers found during the implementation of BEST and strategies to overcome them.

The next section specifies in detail how data will be collected.

A. Plant and business context

The following table shows the context areas to be addressed, the questions that the researcher must keep in mind and what must be answered on each area, the unit of analysis to which the questions should refer to, and the field procedures and potential sources of information for answering those questions.

Plant and business context

Context area	Unit of analysis	Questions	Field procedures / sources of information
Business environment	Plant	- Key characteristics of business environment (industry, market growth, market share, etc.). - Major changes in customer demands and business conditions in past few years. - Major business challenges.	- Archival sources (background information on the industry) - Documentation (reports) - Interview (BEST champion, Plant management team)
Organizational structure	Plant	- Number of production workers (direct) vs. other (indirect) - Number of people employed in several categories (e.g. management, quality, engineering, etc.) - Number of hierarchal levels - Organizational chart	- Documentation (organizational chart, quality manual)
Workforce skills	Plant	- educational level - Is there a training plan? - Number of training hours / employee.	- Documentation (HR reports)
Plant performance	Plant	- Performance in relation to competition (productivity, quality)	-Documentation (performance reports) -Interview (Plant management team)
Communication	Plant	What communication channels are in place (e.g. internal journal, notice boards, intranet, etc.)?	-Direct observation (on-site observation)

B. BEST benchmarking initiative

The following table shows the BEST benchmarking initiative issues to be addressed, the questions that the researcher must keep in mind and what must be answered about BEST, the unit of analysis to which the questions should refer to, and the field procedures and potential sources of information for answering those questions.

BEST benchmarking initiative

BEST initiative issue	Unit of analysis	Questions	Field procedures / sources of information
Type of benchmarking	BEST	The researcher should attempt to identify the type of benchmarking being used. Where the type benchmarking being used does not fit the conventional types, the researcher should identify the object of study and the comparison partner(s). - Is the organization seeking to improve performance, processes or strategy? - What are the sources of comparison data?	- Documentation (CBI, BEST, conference, e-mail) - Interview (BEST champion, BEST coordinator)
Benchmarking process/steps	BEST	Is the organization using an established benchmarking process or is benchmarking carried ad-hoc? Gather the information required to draw the benchmarking process steps being followed.	- Documentation (CBI, BEST, conference, e-mail) - Interview (BEST champion, BEST coordinator)
Stated benchmarking objectives	BEST	How was benchmarking introduced in the organization? - Was it top management led? - What importance/priority was given to this initiative? What are the stated objectives? Were they communicated to the organization? How? What objectives do the interviewees recall?	- Documentation (BEST, conference, newsletter, e-mail) - Interview (BEST champion, BEST coordinator, BEST team)

BEST initiative issue	Unit of analysis	Questions	Field procedures / sources of information
Implementation timeline	BEST	The researcher should investigate what phases or steps of the benchmarking process have been completed and when. Were all steps fully completed? What is yet to be completed?	- Documentation (BEST) - Interview (BEST champion, BEST coordinator)

C. Barriers found during the implementation of BEST and strategies to overcome them.

The following table shows the category of barriers to be addressed, the questions that the researcher must keep in mind and what must be answered on each category, the unit of analysis to which the questions should refer to, and the field procedures and potential sources of information for answering those questions.

Barriers found during the implementation of BEST and strategies to overcome them

Category of barrier	Unit of analysis	Questions	Field procedures / sources of information
General	BEST	The researcher should attempt to investigate what barriers / difficulties did the informant experienced or observed during the benchmarking initiative, and what strategies were followed to overcome these barriers. - Request the informant to recall the benchmarking initiative steps/process. The investigator can start with open-ended questions, such as: - In your experience which were the barriers found in the process? - Can you tell me any episode related to barriers / difficulties you have encountered / observed? - What did stop you from achieving xyz objective? - What has or could be done to overcome these barriers?	- Interview (BEST coordinator, BEST team, Plant management team)

Category of barrier	Unit of analysis	Questions	Field procedures / sources of information
Organizational – people	BEST	The researcher should attempt to investigate how people did react to the benchmarking initiative. Were there any signs of *resistance*, *fear of change, fear of exclusion*…? - You didn't talk much on the subject people. Any barrier in this subject? Can you recall any episode? - What has or could be done to overcome these barriers?	- Interview (BEST coordinator, BEST team, Plant management team)
Organizational – culture	BEST	Attempt to investigate whether the plant's organizational culture is favourable or unfavourable to the implementation of benchmarking. Some of the organizational culture aspects to consider are: *learning practises, openness, routine and complacency, poor communication, etc.* - Organizational culture is an important factor in the implementation of a new initiative. - Do you consider that the Plant's organizational culture might constitute an obstacle to a smooth benchmarking process? - Request evidences, episodes. - What has or could be done to overcome these barriers?	- Interview (BEST coordinator, BEST team, Plant management team)
Organizational – context	BEST	Investigate whether the Plant's context conditions are favourable or unfavourable to conducting a benchmarking initiative. In case barriers have been found, investigate what has or could be done to overcome these barriers?	- Interview (BEST coordinator, BEST team, Plant management team)
Benchmarking project management – planning and implementation	BEST	Investigate whether there are barriers related to benchmarking project planning and implementation. Consider the areas of *project planning, skills and training, changes to initial plans, implementation issues, etc.* In case barriers have been found, investigate what has or could be done to overcome these barriers?	- Interview (BEST coordinator, BEST team, Plant management team)

Category of barrier	**Unit of analysis**	**Questions**	**Field procedures / sources of information**
Benchmarking project management – leadership	BEST	Investigate whether project leadership constituted a barrier to the benchmarking initiative. Consider areas such as: *management support, involvement/commitment, project coordination, etc.* In case barriers have been found, investigate what has or could be done to overcome these barriers?	- Interview (BEST coordinator, BEST team, Plant management team)
Benchmarking project management – business pressures	BEST	Investigate whether there were all conditions to implement the initiative, namely *resources (time, finance and expertise) and business will*. In case barriers have been found, investigate what has or could be done to overcome these barriers?	- Interview (BEST coordinator, BEST team, Plant management team)
Benchmarking data barriers	BEST	Investigate whether benchmarking data collection and analysis was an issue. - Did you manage to gather all data required to conduct the benchmarking study? - Did you come across any difficulties/barriers during the process? - What has or could be done to overcome these barriers?	- Interview (BEST coordinator, BEST team, Plant management team)

Annex F – Sample of interview guidelines and data collection: BEST Coordinator

Interviewee: BEST coordinator

Date: 24-01-2004

Time: 15:00

Local: Aveiro

Objective: Gather data on business environment, Best benchmarking initiative and barriers

Brief introduction:

Present the research objectives, the interview objectives and structure, the expected duration and norms to be followed.

Mention that:

- The raw data gathered will be used solely for the purpose of this research.
- If you don't feel comfortable with any question, please feel free not to answer.
- Or, if you think there is someone else best positioned to answer, please let me know.
- It might be expected that I already know the answer to some of the following questions, but I cannot make any assumptions, thus I'll ask anyway.

B. BEST benchmarking initiative

Consider the BEST benchmarking initiative from the very start of its inception.

Best initiative issue	Questions	Answer
Stated benchmarking objectives & Type of benchmarking	**Question 5:** Why did Brintons decide to use benchmarking? What were the motivations?	- The group wanted a proved method for the transfer of best practices, a way to track performance improvement and to compare itself with others. The group was looking for some constructive internal competition to boost the search for practice and performance improvement. This competition was to include all areas / functions of the business by having manufacturing, engineering, design, sales & marketing, admin, etc. all competing for improvements and measured by the same gauge. Benchmarking was the selected tool. - In addition to the internal comparison the group also wanted to be able to compare itself with outside companies, particularly with the best companies, with world-class companies. The benchmarking tool selected – BEST PROBE – provided that comparison since it already had a large database of companies from several countries, namely from north European and north American countries.
	Question 6: How was benchmarking introduced to the organization? • What was the role of top management? • What importance/priority was given to this initiative?	- In the Brintons conference 2003 the group managing director introduced BEST – Brintons Excellence through Structure and Teamwork – as a challenging initiative that was going to take the group forward in the next few years, by driving best practices sharing among the various units and performance improvement. BEST was presented to the conference attendants at the highest management level and requested the diligence of everybody, namely management at all levels. - It was also said that the group has made considerable improvements over the last decade and this involved big changes. But competition was also improving and we need to keep running ahead: BEST is the tool to help us on our path to becoming a world-class company.

Best initiative issue	Questions	Answer
	Question 7: What were the criteria, if any, for selecting Best PROBE benchmarking tool?	- Don't know.
	Question 8: At the start of Best initiative, which were the objectives / results you expected to achieve? *Note: See if any of the following were expected results:* • *To improve processes,* • *To improve performance,* • *To improve practices,* • *To improve strategy.*	- From BEST, I expected a methodology for measuring our current situation and tell us were we are against our colleagues in the group and against the best companies. We should then share our best practices with the BEST office (office set-up by the group to facilitate best practice sharing), so other business units could learn from us. Conversely, we would request the BEST office to help us improving our weak aspects by telling us who was the owner of the best practices within the group. We would the try to learn from the best practices of other to improve ours. - BEST is not about improving processes, neither strategy. - BEST is about improving practices and performance. BEST is about learning the best practices from others to improve our own practices. If we improve practices this will ultimately lead to improved performance. That is the principle of BEST PROBE.
Implementation timeline	**Question 9:** Can you recall the major steps / milestones in introducing Best? What were the major difficulties/barriers found in the introduction of Best? How were they overcome?	- BEST initiative was expounded by top management at Brintons conference 2003. - At Bridal the initiative was communicated to all personnel by the end of 2003, using posters with main BEST objectives. - By Oct/Nov-2003 the BEST team was put together and explained their role. - In Nov-2003 the BEST team filled in the questionnaire individually. Later the team met to discuss the questionnaire and to come to an agreement over the tams score for each question. - In the beginning of Dec-2003 the BEST team met with a facilitator to discuss the questionnaire' team score and to arrive to a final score. At the end of the meeting a provisional diagnostic was given to the BEST team and to Bridals top management.

Best initiative issue	Questions	Answer
		- By Mar-2004 the BEST report was received and discussed. A synthesis of the report was made and presented to the BEST team and to FARM's team (FARM is the top internal meeting, involving various departments). - In May/June-2004 several meeting were undertaken to discuss the improvement priorities for developing a suitable action plan. Half a dozen actions were selected for implementation, with a brief description, action owners and a deadline. - BEST got stuck at implementation stage! BARRIERS - BEST was a novel initiative and thus found a lot of scepticism among most of people at Bridal, from management to shop floor employees. A strong advertising campaign with short but meaningful phrases was used to call everybody's attention to the initiative, getting their interest in knowing more about it and wanting to participate when and if required. I think the campaign succeeded in: 1) calling everybody's attention to BEST; 2) raising some curiosity/interest in participating; 3) raising people's expectations over the initiative. By other hand, the campaign was not sufficient to pass the message on what BEST is all about … this was not clear to everybody.

C. Barriers found during the implementation of Best and strategies to overcome them.

Consider the process of implementing the Best initiative at Bridal, namely:

- Presentation of the Best initiative to the organization;
- Building the Best team;
- Filling the questionnaire;
- Analysis of Best questionnaire results;
- Development of an action plan;
- Taking action.

I'm interested in understanding the barriers that you have come across or have observed in the implementation of Best.

By barriers I mean any obstacle, pitfall, drawback, limitation or difficulty.

Category of barrier	Questions	Answer
---	**Question 10:** Some of the steps in the Best process might have not been performed as smoothly as one would expect. In your experience which were the barriers/difficulties found in the process?	- BEST was something new, not experienced before, something that challenged the status-quo. At BRIDAL we were used to have always the same people participating in this sort of initiatives. In this instance the BEST team was made of people coming from different areas and different hierarchy levels, including shop-floor personnel. Some Managers/Team Leaders were not happy to have their people participating in the BEST team because "Maybe they get to know things firsthand or get access to information the Managers / Team Leaders don't have … and that's not good". - The organization is not used to make shop floor people available during work time to participate in initiatives other that production-related ones. It was difficult to get some people to spare the time to participate in the BEST team. - Shift working was a barrier. It is difficult to get people that work different shifts to meet without affecting their resting periods. Some members of the BEST team were working on the night shift and had to come and meet during the day. - The coordination of BEST is not compatible with demanding production responsibilities. When the work pressure increases the production responsibilities always come before BEST. And once we stop for a few weeks with BEST initiatives it is very hard to start from where we've stopped. We loose rhythm and the project loses continuity. To disseminate BEST principles you need constant communication, constant feedback, and build on this continuously. - Some people are reluctant to participate and contribute to BEST. Maybe they feel it is not their job, maybe they feel that they were not involved from the beginning and thus BEST is not for them.
---	**Question 11:** Can you tell me any episode related to barriers / difficulties you have encountered / observed?	- It was difficult to get the BEST team together to discuss the questionnaire. There were two major reasons: 1) Incompatible working hors because team members were working different shift patterns;

Category of barrier	Questions	Answer
		2) Difficulties in making people available from their production duties. Some Managers/Team Leaders were reluctant to releasing people from their duties. - Unwillingness to get involved in BEST. Some people were requested to develop actions to improve some weak drivers identified in the BEST report but were not willing to participate. - It was very difficult, and even impossible in some cases, to assign the responsibility to implement the BEST actions. In some cases people didn't want to take the ownership of the actions, even if they participated in its development. In other cases it looked as if the organization didn't possess the right structure / functions / skills to implement the action.
	Question 12: What did stop the company from achieving the Best objectives?	- Failure at the implementation stage. It was very difficult to agree a set of actions to address the identified weaknesses, and even more difficult to get someone to take responsibility to implement these actions. - Full employee involvement was not achieved. Partially this was due to poor communication of BEST progress.
---	**Question :** What has been done or what could have been done to overcome the barriers identified above?	- No noticeable actions were taken to overcome the above barriers. - Communication of BEST issues should be continuous and should allow for feedback. Thus, communication should be channelled through the Human Resource's department.
Organizational – people	**Question 13:** You didn't talk much on the subject people. Any barrier in this subject? Can you recall any episode? What has been done / could have been done to overcome the barriers? *Note: The researcher should attempt to investigate how people did react to the benchmarking initiative. Any signs of resistance, fear of change, fear of exclusion…*	- A few Managers and Team Leaders were not willing to release their people from their normal tasks to participate in the BEST team. They were not happy to have their people participating in an initiative that they were not participating themselves. - The BEST team had difficulties discussing some topics of the questionnaire because some elements didn't understand the concepts neither the questions. The team had a poor understanding of concepts in the field of management, leadership, quality, etc. The understanding of some questions was also difficult to a few elements. Sometimes examples had to be given to help the understanding of the question. This made group discussion a bit harder and frustrating at times to both the people that didn't quite understand what was

Category of barrier	Questions	Answer
		being discussed and the people that understand the concepts and wanted to move forward. The educational level of the organization's employees makes it difficult to build a BEST team with elements from across the structure, which is able to understand and effectively discuss the BEST questionnaire.
Organizational – culture	**Question 14:** Organizational culture is an important factor in the implementation of a new initiative. Do you consider that Bridal's organizational culture might have constituted an obstacle to a smooth Best implementation? Request evidences. What has been done / could have been done to overcome the barriers? *Note: Organizational culture is defined here as the "behaviours encouraged by the organization"*	- Lack of employee participation culture. The participation in the discussion of organizational issues is not encouraged by the organization. Employees are not too keen in participating either. Organization related issues are considered to be a manager's job. - People are not used to express their opinion freely without fearing consequences. There is the worry that a challenging comment at a BEST team meeting might be recalled out of context and be used against the person who made the comment. Thus, if a hot topic is being discussed some people prefer to refrain from expressing their opinion.
Organizational – context	Do you consider your organization was prepared to undertake benchmarking? Was there any missing pre-requisite? Give specific example.	- The organization lacks a capable Human Resources function, a mature Quality System, and a culture of action and continuous improvement. This organizational context made it more difficult to implement BEST because some of the support systems/functions were just not there to help the implementation. Implications of a poor Human Resources function in the BEST initiative: 1) Lack of support in the communication of BEST objectives, initiatives and progress. 2) HR didn't receive the feedback of employees to the initiative. 3) Most of the weak drivers identified in BEST report had to do with people. The HR function was not resourceful at devising the required actions to improve the weak drivers, and was not able to implement the agreed actions. It is important to mention that the HR function has been under restructuring for

Category of barrier	Questions	Answer
		over one year, with people coming and going. This has affected greatly its performance and the poor support given to BEST. Implications of an immature Quality System in the BEST initiative: 1) Concepts like leadership, quality, continuous improvement, zero defects, customer satisfaction, etc. are poorly understood in the organization. This made the discussion more complex. A lot of "stone breaking" had to be made to move forward in the discussion of the questionnaire, and the results were not satisfactory. 2) The Quality function should have developed and undertake a few actions to improve weak drivers identified in the BEST report but this function is yet too focused on the quality related paperwork and bureaucracy. 3) If the Quality System was well established the setting up of teams made of shop floor employees to discuss organization issues would have been much easier. Implications of a poor culture of action and continuous improvement in the BEST initiative: 1) The organization showed its poor ability at implementing actions as per the established schedules. Unless someone from above keeps the pressure actions tend to be left back, and people tend to concentrate on their routine, hassle free tasks.
Benchmarking project management – planning and implementation	Investigate whether there are barriers related to benchmarking project planning and implementation. Consider the areas of *project planning, skills and training, changes to initial plans, implementation issues,* etc. What has been done / could have been done to overcome the barriers?	- Planning the BEST initiative up to the implementation stage was not a problem as the BEST documentation provided good guidelines for doing it. The problems started at implementation stage. - It was difficult to develop and agree the BEST action plan. There was lack of ownership from various areas. It looked as if some of the areas of the business didn't feel responsible for improving the weak drivers that they could act upon. This attitude could have been improved if top management gave priority to BEST. - Implementation was very poor in all areas. Most of the actions stayed in the paper as good intentions. Out of the implemented actions, schedules were not

Category of barrier	Questions	Answer
		kept at all. There were several arguments for not keeping the schedules: 1) Lack of resources. For example, one of the actions involved the recruitment of an IT probationer. This was delayed for almost one year as the group wouldn't approve the recruitment. 2) Lack of time. This was the most frequent argument. People are soaked into their routine tasks and they argue there is no time to spend on non-routine projects.
Benchmarking project management – leadership	Investigate whether project leadership constituted a barrier to the benchmarking initiative. Consider areas such as: *management support, involvement/commitment, project coordination*, etc. What has been done / could have been done to overcome the barriers?	- As mentioned before, top management failed to give adequate support to the BEST initiative, particularly during action plan's implementation stage, when support and commitment was most needed. Support could be in the form of highlighting BEST importance and priority within their team, supporting the BEST actions in the area and allowing for their team's time to implement the actions. - The BEST initiative was not coordinated adequately. The person responsible for the coordination of BEST had other responsibilities that took higher priority than BEST, and thus BEST activities were often left behind. Ideally, BEST coordination ought to have been the top responsibility of a specific individual.
Benchmarking project management – business pressures	Investigate whether there were all conditions to implement the initiative, namely resources (*time, finance and expertise) and business will.* What has been done / could have been done to overcome the barriers?	- BEST initiatives were not on the budget. Thus, any actions had to be supported by the departments involved. - Individuals were not released from some of their routine tasks in order to dedicate themselves to BEST initiatives. This was my case. Other individuals argued they hadn't enough time to get involved in BEST. - It was also noticeable a lack of expertise to implement some of the actions identified, particularly in the HR area. Some actions remained on paper because we couldn't find anyone qualified and willing to take them forward.

Category of barrier	Questions	Answer
Benchmarking data barriers	Did you manage to gather all data required to conduct the benchmarking study? Did you come across any difficulties during the process? What has been done / could have been done to overcome the difficulties?	Data was easily accessible. Nevertheless, there were occasional doubts regarding data accuracy.
---	**Question 16:** If we were to start the Best initiative all over again what would you do differently?	I've already answered to this in my previous questions, but I'll come back to it. First, the BEST coordinator would have to be someone that could spare the required time for this initiative (i.e. BEST should be his primary task). In this way, BEST would be a continuous process, without interruptions because of other priorities popping up. These continuity and stability are very important in the eyes of everybody in the organization. Second, ensure that top management support and commit fully for the success of BEST initiative. BEST progress should be reviewed at high-level meetings. Third, ensure better communication of BEST report results within the organization and especially amongst middle managers in order to get their commitment and support. Fourth, integrate BEST action plans with organizational strategy deployment and departmental action plans. In this way, the actions resulting from BEST would be implemented and monitored in the existing management system.

Final questions:

- Is there anything else you would like to add?
- Confirm if interviewee want to review the interview notes.

Annex G – Interview data display

Classification (To which category can it be assigned to?)	**Interview reference**	**Barrier name**	**Evidence**
A1a	I1-Q13	Fear of change	Maybe there is fear of change.
	I3-Q5	Resistance and unwillingness to change	[reporting in difficulties with employees] Employee involvement and commitment with the project. Since BEST is something new in the organization the immediate reaction from employees is to have “fears of all kinds”.
A1b	I1-Q10	Language	Language: Portugal was the only business unit that did not speak English. The questionnaire was in English and had to be translated, the facilitator (John Hilliard) had the score discussion in English.
	I1-Q10	Inadequate skills	Level of education might be a barrier. Difficulties in understanding the concepts.
	I1-Q13	Not strong enough “shop-floor” personality	“Maybe the shop floor personality is not strong enough to do things (Best initiatives), especially when shop floor is mostly women“.
	I2-Q10	Education and cultural level	The educational level of the employees made it difficult to build a BEST team from across the structure.
	I3-Q12	Language	Language was a difficulty in the filling of the questionnaire. It had to be translated.
	I4-Q5	Low education	Our people have low education and they have low abstraction capabilities. This did not help the process. Only a dozen people really believed in the BEST initiative. If we all believed, synergies would have been created.
	I4-Q5	Language	Language was a problem. To overcome it, the questionnaire was translated. This resulted in loss of time and message was affected.
	I5-Q1	Education and cultural level	Not everybody “spoke the same language” in the BEST team. This made discussion a problem.

Classification (To which category can it be assigned to?)	**Interview reference**	**Barrier name**	**Evidence**
	I6-Q1	Language	The language is a barrier. The translation of the questionnaire affected the meaning of the words.
	I6-Q1	Education and cultural level	The cultural and literacy level and knowledge of people was a barrier. This barrier was essential when we discussed the questionnaire.
	I6-Q2	Education and cultural level	We lost a lot of time when discussing the questionnaire due to the low educational level and comprehension difficulties of some issues.
	I6-Q5	Education and cultural level	The educational level/literacy is a problem in our organization. We have the right people to work with machines, but we don't have good ones to do paperwork, nor to discuss important issues for the organization. People do not feel comfortable when they are asked to help changing the way things are working in the organization.
	I6-Q7	Education and cultural level	We need to invest in people: in training and in information technologies.
A2a	I1-Q10	Poor problem solving/learning	Overcoming the idea that "only managers can solve problems".
	I2-Q11	Not a learning organization	People are not used to speak freely without fearing consequences. If a hot topic is being discussed at a BEST meeting, some people prefer to refrain from expressing their opinions.
A2d	I1-Q10	Poor communication practices	"Bridal is not so good in communicating to the shop floor, not as good as we do in UK. Best requires good communication in place."
	I3-Q5	Communication of objectives	There were difficulties in communicating the objectives of BEST project to all the employees. Difficulties in putting the objectives in plain words and in explaining advantages of BEST.
	I6-Q8	Poor communication practices	People in charge with the implementation of BEST actions did know the plans, but I am not sure that all organizations knew what were the actions planed.

Classification (To which category can it be assigned to?)	**Interview reference**	**Barrier name**	**Evidence**
	I6-Q9	Poor communication practices	If the communication practices functioned, the HR department should be the channel to keep people informed about BEST. But this did not happen due to frequent changes in HR department.
A2e	I2-Q5	Scepticism / Lack of openness	BEST was a novel initiative and faced scepticism among most of the people, from management to shop-floor employees.
	I2-Q6	Scepticism / Lack of openness	BEST challenged the status quo; we were used to have always the same people participating in this sort of initiatives. BEST team involved people from various functions and various hierarchical levels, which created frustration in some managers not involved in the initiative (they assumed their subordinates may get to know things or get information firsthand).
	I7-Q1	Scepticism / Lack of openness	Generally speaking, people do not take this type of initiative too seriously; they consider it to be low importance. This is true to the people involved in the initiative, to their colleagues and managers. If people don't give enough importance to the initiative, there are no conditions for things to really happen.
	I7-Q9	Scepticism / Lack of openness	People do not believe that some of the initiatives will actually result, nor who suggests the initiatives, nor who sponsors them, nor who needs to put them in place. When some ideas are discussed, people don't think that anything is going to happen.
	I7-Q9	Scepticism / Lack of openness	People are used to produce. They think there is nothing else to do that could lead to improvement.
A2f	I2-Q11	Reluctance to get involved / participate	The organizational culture does not stimulate participation of employees. Organizational related issues are considered to be a management job.
	I2-Q6	Reluctance to get involved / participate	Some people are reluctant to participate and contribute into BEST, either because they feel it is not their job, or because they feel they were not involved from the beginning.
	I2-Q7	Reluctance to get involved / participate	Some people were unwilling to get involved in BEST and to help implementing actions to address weak drivers resulting from BEST.

Classification (To which category can it be assigned to?)	**Interview reference**	**Barrier name**	**Evidence**
	I2-Q7	Reluctance to get involved / participate	It was very difficult to assign responsibilities to implement BEST actions. In some cases, people did not want to take ownership of actions, even if they participated in their development.
	I3-Q5	Reluctance to get involved / participate	In the BEST team it was difficult to get people to feel “comfortable” and “relaxed” in order to participate in an uncompromised manner, and express their opinion with openness.
A2g	I1-Q13	High perception of hierarchy	There is a high perception of hierarchy.
	I1-Q13	Hierarchal control	“Some want to control all initiative, especially information! This will kill shop floor involvement”
A3a	I2-Q12	Poor quality system	Our quality system is not yet mature. Concepts like leadership, quality, continuous improvement, zero defects, customer satisfaction etc. are poorly understood in the organization. This made the discussion at BEST meetings more difficult. The quality function is too focused on paperwork and did not devise improvement actions to overcome weak drivers. The setting up of teams would have been much easier if this had been used already for quality purposes.
A3b	I2-Q6	Working schedule	Working in shifts was a barrier. It was difficult to get all people into BEST without affecting their resting period.
	I2-Q7	Working schedule	Incompatible working hours made it difficult to get the BEST team together to discuss the questionnaire.
A3c	I2-Q12	Inadequate structure, functions, expertise	The organizational HR function had difficulties in supporting the BEST initiative, namely in what concerns the communication of BEST objectives and its progress and the reception of feedback from employees. Most of the weak drivers identified in the BEST report had to do with people. The HR function was not resourceful at devising the required improvement actions, nor at implementing them.
	I2-Q15	Inadequate structure, functions, expertise	It was noticeable a lack of expertise to implement some of the actions identified, particularly in the HR area. Some actions remained on paper, as we couldn’t find anyone qualified and willing to take them forward.

Classification (To which category can it be assigned to?)	**Interview reference**	**Barrier name**	**Evidence**
	I2-Q7	Inadequate structure, functions, expertise	In other cases, organization did not seem to possess the right conditions to implement the action.
	I5-Q7	Inadequate structure, functions, expertise	We miss an organized way of working. We have weaknesses in what respects the analysis and we lack methods. There is no compromise between people when it comes to following a common direction.
	I6-Q1	Inadequate structure, functions, expertise	The organization could not cope with the implementation of some actions. Some actions could have been implemented and yet they were not; it was not only a question of cost.
	I6-Q3	Inadequate structure, functions, expertise	The main barrier that prevented the organization to attain the BEST objectives had to do with the way we are organized, e.g. there is a BEST office to ensure best practices exchange, but it does not appear to be working.
	I6-Q4	Inadequate structure, functions, expertise	The restructuring of the HR department was fundamental for the BEST initiative, to improve communication, motivation etc. Yet, it did not work well. There were several delays in restructuring the HR department during BEST initiative.
B1a	I2-Q10	Inadequate skills and poor training	The BEST team had a poor understanding of concepts associated with management, leadership, quality etc. This led to difficulties in discussing some questionnaire topics.
	I4-Q11	Insufficient capabilities	We do not have a specialized structure. We are always the same people doing different things. We lack specialization.
	I7-Q8	Inadequate skills and poor training	We ignore the significance of lot of BEST concepts.
B1b	I2-Q13	Poor planning	It was difficult to develop and agree the BEST action plan. There was lack of ownership from the various areas.
	I3-Q7	Poor project definition	Poor project definition.
B1c	I4-Q10	Inadequate benchmarking topic	The questionnaire included issues that did not concern our organization.

Classification (To which category can it be assigned to?)	**Interview reference**	**Barrier name**	**Evidence**
	I5-Q1	Too broad benchmarking topic	The questionnaire was too broad.
	I5-Q1	Too broad benchmarking topic	Because the questionnaire was broad and includes elements that the BEST Team cannot change, we start thinking “maybe this is not for us, it is more for the Top Management”. This makes the Team break apart.
	I5-Q1	Too broad benchmarking topic	The involvement of BEST team members is forced, as the questionnaire is very broad; it includes issues that people do not know in detail.
	I5-Q3	Too broad benchmarking topic	We got stuck in the BEST initiative as it is too broad. It could have been more focused on a specific area, e.g. Production.
	I5-Q3	Too broad benchmarking topic	We wanted to do everything at once, mixing the technical and human issues. When results get to the shop floor, everything is mixed and people do not understand what the objectives of the BEST initiative are.
	I5-Q3	Inadequate benchmarking topic	BEST should have an objective that people could identify with. The informant considered that the BEST objectives are not clear, and therefore, are unknown in the organization.
	I5-Q6	Inadequate benchmarking topic	BEST surged from a different reality and was not adapted to ours.
B1d	I3-Q5	Benchmarking report not effective	There were difficulties in interpreting the BEST report in order to find/get relevant results
B1e	I2-Q12	Poor project management practices	The organization showed a poor ability at implementing actions as per established schedule. Unless someone from above kept the pressure actions tended to be left back and people tended to concentrate on their routine, hassle-free tasks.
	I3-Q11	Poor project management practices	Instead of aligning BEST initiative with organizational processes in place, there was a tendency to treat it as if it had nothing to do with anything else. Difficulties to integrate the BEST initiative with the global management processes, taking advantages of the existing organizational capabilities.

Classification (To which category can it be assigned to?)	**Interview reference**	**Barrier name**	**Evidence**
	I3-Q12	Poor project management practices	We were unable to keep the schedule of some of the improvement initiatives. Successive delays were registered. We could not keep the schedule.
	I3-Q14	Poor project management practices	Difficulties in quantifying the payback of improvement initiatives, particularly in the case of the ones that aimed at improving practices.
	I4-Q10	Lack of appropriate objective-setting/reward system	We do not work on objectives. We have no appropriate reward system. The evaluation is done based on tasks performed instead of focusing on achievements/results.
	I4-Q6	Poor project management practices	It would have helped all of us if we knew where we were at any time. A progress report was needed. We lost track of how things were going.
	I5-Q3	Poor project management practices	We have been waiting for a lot of time for help from outside. We missed continuity. After we stopped, we needed to start it all over again, which is difficult.
	I6-Q8	Poor project management practices	Long-term planning for BEST went out of schedule. The same happened with the communication of BEST results (i.e. BEST report). The implementation of BEST actions was even worse.
	I7-Q9	Poor project management practices	As soon as initiatives discontinued, as people could not see actions being implemented, they started to think that this was just another initiative that led to nowhere.
B2a	I2-Q14	Poor senior management support	Top management failed to support adequately the BEST initiative, particularly at the implementation stage.
	I4-Q5	Poor senior management support	The coordination of the BEST project was assigned to an operational individual. Somebody from the top management team should have been assigned as Project Sponsor. The Sponsor was missing.
	I5-Q9	Poor senior management support	Top management alienated from BEST initiative when it gave it to BEST Coordinator. Then, it went away. If top management does not appear, does not ask, does not accompany, the results are not the same. Top management did not support the initiative, nor the coordinator.

Classification (To which category can it be assigned to?)	**Interview reference**	**Barrier name**	**Evidence**
	I6-Q10	Poor senior management support	If BEST was a top management concern, in top management review meetings BEST should be considered and discussed. But this is not the case.
	I6-Q9	Poor senior management support	The involvement, the leadership of top management failed. Pressure from top management was not there to make things happen (i.e. BEST improvement actions)
B2b	I2-Q10	Lack of involvement / commitment	Some managers were unwilling to release their people in order to participate in BEST initiative. They were not happy with having their subordinates participating in something they were not part of.
	I2-Q8	Lack of involvement / commitment	We failed in getting full employee involvement, partly due to poor communication of BEST progress.
	I3-Q13	Lack of commitment	It was increasingly perceived the lack of motivation from the BEST office leadership. They stopped believing in the project.
	I7-Q6	Lack of involvement / commitment	People that did not participate in BEST meetings did not feel a part of it. They mocked the initiative, using the BEST word to say jokes. Nobody participates from the “Revista” area, which made the workers from this area to feel left aside. Some managers felt left aside because colleagues participated and they didn’t.
B2c	I2-Q8	Poor project coordination	BEST initiative failed at implementation stage, due to difficulties in identifying the right improvement actions or in assigning responsibilities.
	I3-Q7	Lack of support	Coordination support from BEST central office was below expectations. Some initiatives were not given continuity by BEST office, which resulted in disorientation and low morale in the plant. People gave up participating in the initiative.
	I4-Q13	Focus on immediate results	BEST Champion is not an example to look for the true questions that affect results. Maybe this influenced the process and we ignored more insightful solutions. Insightful solutions were lacked. The vision was short-term.
	I6-Q10	Poor project coordination	If BEST office had functioned properly, it ought to have asked us about progress with BEST. It should have made questions, if only to remember that BEST initiative is still going on.

Classification (To which category can it be assigned to?)	**Interview reference**	**Barrier name**	**Evidence**
	I7-Q7	Poor project coordination	BEST was idealized by the group, in UK. To some extent, it was imposed. If the Group keeps the pressure from the BEST Office or via management, things get done, otherwise, the initiative fades away.
B3a	I1-Q10	Insufficient resources	Initiative overload: not concentrate. [Not enough resources to maintain too many initiatives going on at the same time. People loose concentration].
	I2-Q13	Resource constraints	In some cases, we've suffered from lack of resources, e.g. one action was delayed for almost one year due to a recruitment issue.
	I2-Q13	Resource constraints	Time was also a constraint. It was the most frequent justification given by BEST participants for the poor progress. This is related to people being soaked in routine tasks and manifest no availability for non-routine endeavours.
	I2-Q15	Resource constraints	BEST initiative was not budgeted. Thus, any action had to be supported by the departments involved.
	I2-Q15	Resource constraints	Individuals were not released from some of their routine tasks in order to dedicate time to BEST initiative.
	I2-Q6	Resource constraints	Shop-floor people are not usually involved in initiatives that go beyond production; it was difficult to get shop-floor people to spare the time to participate into BEST.
	I2-Q7	Resource constraints	It was difficult to make people available (from their production duties) to attend the BEST team meetings.
	I3-Q12	Resource constraints	There was delay in one of the initiatives, which involved the recruitment of one person. This was due to other financial priorities.
	I4-Q5	Insufficient resources	Existing organizational structure did not allow for someone to be assigned as full-time BEST coordinator. Instead, it was selected the Production Director, which is the same as saying that production goes first, and BEST goes last.
	I6-Q1	Resource constraints: cost	Some ideas were rejected due to cost constraints. Ideas were taken out by decision-makers (top management).

Classification (To which category can it be assigned to?)	**Interview reference**	**Barrier name**	**Evidence**
	I6-Q10	Resource constraints	People have not enough time to develop work outside their day-to-day jobs. BEST is something outside routine, there is no time to think in detail the ideas, the actions, not even to put them on paper. An example: difficulty to progress with initiative “cross-functional improvement teams”. Team group meetings have started, but they are not given continuity due to lack of time or unavailability.
	I6-Q2	Resource constraints	There was a certain difficulty to joint the people in the same place in the same time to fill in and discuss the questionnaire
	I7-Q2	Resource constraints	It is difficult to free people to participate in this kind of initiative, BEST or other kinds. People are unavailable.
	I7-Q3	Resource constraints	Production pressure primes over everything else. This impact on people’s availability, on the unwillingness of managers in freeing up their people, even though the meetings only last for two or three hours.
	I7-Q9	Resource constraints	People manifest some unavailability. The initiative takes time and there are other pressures from Production.
B3b	I1-Q16	Bad timing	“Timing was not good. Group is so much different now after closing and selling various business units!”
	I2-Q14	Business pressures	The BEST initiative was not coordinated adequately. The BEST coordinator had other responsibilities that took over BEST.
	I2-Q6	Business pressures	BEST coordination was not compatible with demanding production responsibilities. When work pressure increased, the production responsibilities primed over BEST.
	I3-Q12	Business pressures	One key obstacle was the operational, day-to-day business pressure, especially in the production area.
	I3-Q13	Business pressures	I don’t think that today BEST initiative is considered a priority in the Group

Classification (To which category can it be assigned to?)	**Interview reference**	**Barrier name**	**Evidence**
	I6-Q10	Business pressures	The message from Group Administration weakens the BEST initiative, because it focuses essentially on production and cost control/reduction. It releases people of the need to worry about BEST. This goes like this: “if don’t worry with BEST, if things are not done, nobody will inquire me about it, because there are other priorities”.
	I6-Q3	Business pressures	The way we prioritise things is also a barrier. We focus too much on machine production, with short-term objectives. Actually, these are instructions coming from Group: increase production and cut costs.
Cb	I2-Q16	Data accuracy	There were occasional doubts regarding data accuracy.
	I4-Q11	Data accuracy	Using this benchmarking methodology, we risk obtaining incorrect information from people that filled in the questionnaire. They might have a perception that does not comply with the organizational reality. Our poor information management practices might have increased difficulties.
	I4-Q15	Data accuracy	At the shop floor level, obtain accurate information is an issue. Often, people responded based on perceptions and not on facts.